

*

UMASS/AMHERST

*



312066 0333 2975 5

LIBRARY
OF THE



MASSACHUSETTS
AGRICULTURAL
COLLEGE

NO. 4271 DATE 12-1885

SOURCE Alumni funds

Per
[Redacted]

v. 24

CHAPEL



THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO
HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

THOMAS MEEHAN,

STATE BOTANIST OF PENNSYLVANIA,

FORMERLY HEAD GARDENER TO CALEB COPE, ESQ., AT SPRINGBROOK, AND AT THE BARTRAM BOTANIC
GARDENS, NEAR PHILADELPHIA. GRADUATE OF THE ROYAL BOTANIC GARDENS, KEW (LONDON),
ENGLAND. MEMBER OF THE ACADEMY OF NATURAL SCIENCES. AUTHOR
OF "AMERICAN HAND-BOOK OF ORNAMENTAL TREES,"
"FLOWERS AND FERNS OF THE U. S.," ETC.

VOLUME XXIV, 1882.

PHILADELPHIA:
CHARLES H. MAROT, PUBLISHER,
No. 814 CHESTNUT STREET,
1882.

G169
CHAPEL v. 24

ILLUSTRATIONS.

Portrait of Patrick Barry, ...		Frontispiece
	A	
Adiantum aneitense, ...		365
Anthurium scherzerianum maximum, ...		23
	B	
Begonia Schmidtii, ...		47
Bignonia magnifica, ...		332
	C	
Calendula officinalis meteor, ...		40
Celosia, President Thiers, ...		362
Chysis Chelsonii, ...		185
Croton recurvifolius, ...		138
Croton Sinitzianus, ...		237
Cymbidium eburneum, ...		13
	D	
Davallia Fijiensis, 2 cuts, ...		265
	F	
Ficus exculpta, ...		56
Fig Culture, Winter Covering, ...		79
	G	
Globba coccinea, ...		284
	H	
Heliconia aureo-striata, ...		299
Hemanthus Kalbryeri, ...		204
	I	
Ixora splendida, ...		75
	J	
James Vick, Portrait of, ...		221
Jasminum gracilimum, ...		46
	M	
Map of Cook's Ranch, California, ...		101
Mushroom Culture, ...		243
	N	
Nepenthes Madagascariensis, ...		344
Nepenthes Morgania, ...		372
Nepenthes Rajah, ...		318
Nertera depressa, ...		152
	P	
Pavonia Makoyana, ...		171
Philodendron carderi, ...		121
Pritchardia grandis, ...		90
	R	
Rheum officinale, ...		69
Rheum ribes, ...		69
Rosa villosa, ...		133
	S	
Selaginella Victoria, 2 cuts		216
Side Cleft Grafting, 3 cuts, ...		143
Steam Heating, 2 cuts, ...		232
	T	
Tree Label, A New, ...		51
	W	
Wind Clapper for Bird Scaring, ...		174
Wire Glove for Protection against Rough Bark, ...		334

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

JANUARY, 1882.

Number 277.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

In starting on our New Year's journey, it may be well to remind the reader that gardening is to be followed chiefly for the pleasure we derive from it. Pretty flowers and handsome trees, beautiful lawns and artistically designed grounds, are the essential elements of gardening. As in other rational enjoyments, the more intelligence and mental culture we throw into the work, the greater enjoyment does gardening afford. At the present time there is something of a revival in true gardening taste. Works on art in gardening, publishers tell us, are in more than usual request, and fine books like "Scott's Suburban Home Grounds," have a more than usual sale. Magazines which in years gone by, would busy themselves only with how shall we eat, and what shall we wear, now find some of their most popular articles are those which relate to garden culture and garden art. We cannot forbear repeating what we have taken several occasions to say of late, that there is a great want of intelligent landscape gardeners of business tact and talent to meet with this increasing demand. Many, to be sure, have had little encouragement of late years. When a chance has offered for good work, it is disheartening to find some one engaged in it, utterly ignorant of what good gardening

requires. But the good landscape gardener must remember that this is the fate of all professions; lawyers, doctors, clergymen, and other professions, have a dozen incompetents for every one fit for his business. The intelligent man must wait for his chance to show what he is. There are few large cities now in the Union but would welcome an intelligent landscape gardener among them. In some places where there are already a few, there is room for many more. It will also be well for those who are about to make or improve their gardens, to remember that true garden taste ought to save and not spend money. It is often sad to pass by places being "laid out" by some bungler, where hundreds of dollars are being wasted, under the name of "practical gardening." It will be money saved to try to find out the man who understands what fine landscape gardening is.

We have often stated that one of the grievous errors of American gardening is that gardens are too large. American fortunes are not so steady. We have a succession of years of prosperity, and among other luxuries form a good garden; but it is hardly put in fair order before we find that its necessary expenses are too large for our income and the establishment runs down. We see these places everywhere. Here are gardens which ought to have half a dozen men to keep them properly, cut down perhaps to one laborer, be-

sides the gardener; and the gardeners engaged are of the cheapest kind, and for all grudgingly paid. It should never be forgotten that it costs something to keep up a garden as well as to maintain horses and carriages. We build stables, and buy fine animals, but we well know that this is but the beginning of an annual cost. A garden must be viewed in the same light. Many lose interest in their gardens through getting poor gardeners. There is nothing new, no taste, no enjoyment. Far better to get some one of superior education and pay him well, though we have but half the extent of ground, or a much less number of greenhouses. We should advise all our friends to cut down their large gardens, employ with the difference only first-rate men at a fair price, and it will be wonderful how much the interest in the garden will grow.

Some judgment is required in pruning flowering shrubs, roses, etc., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set with a pair of sheers, and he goes through the whole place, clipping off everything indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut in more severely than the stronger ones. Some things like the Mock Orange, Lilacs and others, flower on the wood of last year—to prune those much now, therefore, destroys the flowering; while such as Altheas, which flower on the young wood, cannot be too severely cut in, looking to that operation alone.

Among the prettiest effects in gardening is the combinations of various plants. A mass of Hollyhocks for instance, in front of an evergreen is singularly pretty. In the fall of the year the colored leaves of the *Andromeda arborea*, give great beauty to a mass of *Rhododendrons*, as also do *Chrysanthemums* and Japan *Anemones* in the fall of the year. There are positions in gardens where hard Cactuses, and such artificial things as *Yuccas*, look particularly beautiful. It is the test of true garden culture, that one is able to bring out fine effects from these simple and well known things.

COMMUNICATIONS.

RARER ORNAMENTAL TREES AND ORNAMENTAL GARDENING.

BY SAMUEL PARSONS, JR.

(Prize Essay for Massachusetts Horticultural Society.)

(Concluded from page 359.)

Among the lindens, our attention is attracted by a curious variegated linden, which shows leaves spotted and streaked with yellowish-white, often to the total exclusion of green. And we must not forget to notice, down near the stream, a fine specimen of the purple-leaved birch. It is one of the best among new acquisitions of lawn planting material. The general habit is that of a somewhat dwarf-growing birch, but the color is brownish red, copper color, or more truly a deep rich purple. Good purple-leaved varieties of any tree are not common. Indeed, we may not hope soon to gain anything of equal value with the purple beech, but the birch is in itself so fine that it is a great thing to discover a purple-leaved variety of that tree. I feel that I have only touched on the many new and valuable deciduous trees on the lawn, but have accorded them more space than the evergreens, because I believe deciduous trees are, in the main, best suited to our lawns in America. Intense though short-lived heat and sudden changes do not favor the growth of evergreens in the same degree as the more equable climate of Europe. We find, however, on this lawn, a very choice collection of new evergreens. Among the spruces we noted several, and chief among those the large-leaved hemlock (*Abies Canadensis macrophylla*), the weeping hemlock (*Abies Canadensis pendula Sargentii*), and the blue spruce of the Rocky Mountains (*Abies pungens*). The hemlocks of this trio are peculiarly suited to small places, but the last named spruce is of larger size. Breadth and depth of masses and color, statuesque form and curious yew-like habit characterize the broad-leaved hemlock. It has little of the ordinary appearance of the hemlock about it, and is more hardy under the peculiar conditions that sometimes affect the common hemlock. It was a seedling discovered in Flushing a few years since, yet it has already achieved favorable recognition from the best judges of lawn planting material. If the broad-leaved hemlock is somewhat stern and masculine in its outline, the weeping hemlock is essentially feminine in its graceful curves and fountain-like sprays of green. Many ordinary

hemlocks take on this weeping form in early youth, but it soon passes away with increasing years. With Sargent's weeping hemlock, however, this beautiful habit is absolutely permanent on all specimens grown from grafts of that tree. Mr. H. W. Sargent discovered this weeping hemlock about twenty years ago, near his place, at Fishkill on the Hudson, and moved by his enthusiasm and appreciation of choice ornamental trees, entrusted it for propagation to the distinguished expert J. R. Trumpy. Turning from this queenly tree, we note the rich grandeur of the third member of our trio of distinguished evergreens. *Abies pungens* is said to be very grand in its natural home of the Rocky Mountains, but its young and more carefully cultured growth on the lawn is without question more beautiful and charming. It is, moreover, the bluest of evergreens, and extremely hardy and vigorous growing withal.

I should, perhaps, note in passing a fine large *Abies excelsa elata*, a very singular variety of Norway spruce originating in Flushing. It grows strongly and throws out long branches of grotesque form. One might fancy it, by a little stretch of the imagination, a fit substitute for *Araucaria imbricata*, which many wish to grow on their lawns in America, but cannot.

The next group of evergreens we notice is Japanese, and clustered variously in the same section of the lawn. *Abies polita*, the tiger-tail spruce, is one of the finest and most valuable of the Japanese conifers. It is rich and very characteristic in form. The yellow-barked branches extend out stiff and straight, and the glossy bright green stiff-pointed leaves are as sharp and not unlike the spines of a hedgehog. The curious appearance of the ends of the young growth or half bursting leaf buds doubtless suggested the name tiger-tail spruce. *Abies polita* grows slowly, and therefore belongs to the class of evergreens specially fitted for small places. But this little cluster of evergreens close by is even better fitted for such work. They are Japanese junipers, and very hardy. Their elegant forms and rich tints would indeed render them distinguished anywhere. One is silvery, at least on a portion of its leaves; another is almost solid gold, and another, *Juniperus aurea variegata*, has its leaves simply tipped with gold in the daintiest fashion imaginable.

Let us look at these two Japanese pines that show so richly even at a little distance. One is

Pinus densiflora, with bright green leaves, long and very effective. This tree grows very rapidly, soon requiring the application of the pruning knife. In coloring and general habit it is, perhaps, the best of Japanese pines, except *Pinus Massoniana*, which only surpasses it in a yellowish tint that generally pervades the leaves. But the *Pinus Massoniana* par excellence is the golden-leaved form of that species. It is bright gold, that seems to gain a touch of deeper gold as you pause to look at it. This peculiar effect is greatly enhanced by the fact that *Pinus Massoniana* has two leaves only in a sheath, and these leaves are so clustered on the end of the branches as to spread in every direction. It was this peculiarity that gave rise to the name sun ray pine. But the noteworthy habit of this pine is its late variegation. In June, while in full growth, it is rather greenish golden than golden, but all through the summer its yellow grows brighter, until in September, it makes a very striking object amid the fading leaves of fall. It makes, in fact, a worthy companion for the golden oak, *Quercus Concordia*, which you will remember has the same peculiarity. It should be also noted that the brightness of the sun ray pine remains uninjured during winter, and never burns in summer, a quality that other so-called golden pines have sadly needed. The bright yellow of the sun ray pine is confined in a peculiar manner to about two-thirds of the leaf. Beginning at the base, first comes gold, then an equal amount of green, and then again as much gold at the tip. The dividing lines between these colors are marked out with singular distinctness, thus giving the utmost delicacy and finish to the variegation. *Pinus Massoniana variegata* is on the lawn in question, but it is nevertheless very rare and hardly to be obtained anywhere.

We come now to the *Retinosporas*, Japan cypresses, choicest, I was about to say, of all evergreens; certainly the choicest, as a class, of all recently introduced evergreens. To Robert Fortune, the great English collector of plants in Japan, we owe probably the real introduction of the leading species of *Retinosporas*, namely: *R. plumosa aurea*, *R. pisifera* and *R. obtusa*, and a greater benefit could hardly have been done the lawn planter than the introduction of these evergreens. They are hardy, of slow growth, and of most varied beauty in individual specimens, the latter being a quality greatly wanting among some evergreens commonly used through-

out the country, arborvitæ for instance. And apropos of arborvitæ, let me say that the retinosporas bear a much more close relation to that species than they do to cypresses, notwithstanding the latter has been adopted as the English name. The retinosporas graft readily on the thujas or arborvitæ, and bear a certain resemblance to them, but the resemblance only that can exist between a beautiful plant and one much less attractive. Let us look at a group of the new and rare retinosporas, although unfortunately all retinosporas are comparatively rare on our lawns. In asking you to look first at flicoides, I am selecting one of the very choicest and most curious green species or varieties. If it were not for a peculiarly thick, curled border along the leaf of this retinospora, it might be readily taken while young for an evergreen fern. It is a spreading plant, of slow growth and great hardiness. Indeed, I might say once for all, that the retinosporas are of unexcelled hardiness, both winter and summer, and that their variegations are all permanent. Can a higher character be given to any other evergreen?

There are two distinct kinds of weeping retinosporas, namely, a beautiful fern-like pendulous form of *R. obtusa*, originating in Flushing, and an extravagant attenuated form imported recently from Japan through Mr. Thos. Hogg. The long thread-like leaves of this variety fall directly down and curve about the stem in swaying meagre masses, which suggest that in this plant the extreme of the weeping form among evergreens has been reached. Almost as curious as this is another introduction of Mr. Thos. Hogg—*R. filifera aurea*. We have known *R. filifera* for some time as a rare tree, with tessellated, shaggy masses of green thread-like foliage, but Mr. Hogg's new variety offers the same strange mass of foliage, only in this case it is turned into gold—broad, solid, permanent gold. While I am pointing out the golden retinosporas, which are veritable sunbeams amid other evergreens, let me call your attention to *R. obtusa aurea*, one of the best and most distinct of all variegated forms. It is free-growing, with a beautiful combination of gold color intermixed with glossy, rich green all over the plant. Although not exactly a new plant, I am constrained to call your passing attention to *R. obtusa nana*, one of the very best of dwarf evergreens, a dense, flat tuft of glossy deep green spray, a cushion or ball of evergreen foliage that will hardly grow two feet in ten years. The

golden form of *R. obtusa nana* is charming. Its yellow is a rich bronze, and I do not know anything of the kind more attractive. *R. pisifera nana variegata* is also very beautiful, a dense miniature bush of a general bluish-gray aspect, except a portion of the lesser branchlets and leaves, which are pale yellow. But do not think I have begun to exhaust the curious forms of these retinosporas. I have only given the most noteworthy to be found on a superior lawn. Any large group of *R. obtusa* will give you a dozen beautiful diverse forms of weeping, pyramidal and dwarf or spreading evergreens. All, or practically all, kinds of retinosporas now used, came from Japan, where they are common but highly valued in the beautiful gardens of that country. Mr. Hogg has not only introduced several of these new retinosporas, but has given us possibly more new Japanese plants than any collector since the time of Robt. Fortune's famous horticultural explorations. I must not leave these retinosporas without calling attention again to their excellent adaptation to small places. If we restrict the planting on a small lawn to Japanese maples, retinosporas and two or three shrubs like *Spiræa crispifolia*, we may almost defy, with a little skill, the power of time to compass, by means of trees, the destruction of our grass plots. I must add, however, one other conifer to this seemingly short but really varied list of new, hardy plants suited to miniature lawn planting.

I refer to *Sciadopitys verticillata*, the parasol pine, one of the most extraordinary evergreens known. The plant we see on this lawn is scarcely two feet high, and yet it is more than ten years old. Travelers in Japan tell us of specimens in Japanese gardens fifty and one hundred feet high, but certainly in youth the plant is wonderfully dwarf. Its strange habit is produced by the curious long, broad, dark-green needles, or narrow strap-shaped leaves that cluster in parasol-like tufts at the end of each succeeding year's growth. The color is as dark as that of the yew, and the growth as compact. It is, moreover, very hardy, and thus presents a combination of choice qualities of the most strange, attractive and valuable character. The plant is so entirely original in its forms, that it seems some lone type, the correlations of which are lost or yet to be found. As we look upon it we commence to realize how thoroughly most plants of the same genus, all over the globe, are related to each other, just

because we can think of nothing else that resembles the parasol pine.

A Japanese yew near by, of rich and spreading habit, exemplifies this resemblance between various members of a genus situated in various parts of the earth. This Japanese yew, *Taxus cuspidata* is, however, very noteworthy for great hardness, a character that can be scarcely accorded to any other yew in this climate. *Thuopsis Standishii* is another Japanese plant on this lawn of comparatively recent introduction. I want to call your attention to it, situated near the retinosporas, not only because it is a beautiful evergreen, somewhat like the *Arborvitæ* in general appearance, but because it does better here, apparently, than in England. This is a peculiarity remarkable in an evergreen, for the moist climate of England seems to make for them a very home.

I should like to speak of other plants on this lawn, but they are either too difficult of attainment, like the *Cercidiphyllum*, a promising tree, or like the dwarf pines and spruces, hardly new enough to come within the scope of this essay.

Before leaving the spot entirely, however, let us stand a moment and take a last look at the unity of effect accomplished on this lawn. Streams, borders of foliage, statuesque small trees and larger specimens, all flow, as it were, together in natural lines. Indeed, harmony of color, and lines combined with contrasts distinct enough to give variety, characterize the entire scene. The position of each plant is so related to the other, for purposes of beauty and perfect development, that one delights in the fair proportion and entire unity of the design. It is a picture and yet something more than a picture; a combination of foliage and grass constructed, not in servile imitation of nature, but on the principles employed by nature in her most pleasing work. The copse or glade is suggested, and yet the treatment of each plant of our lawn is very different from that of the wildwood, and indeed more honorable to that plant's highly cultured nature. Perfect maintenance, exquisite keeping are evident everywhere, from the skillfully-pruned shrub to the velvet turf that catches athwart its beautiful surface the level rays of the setting sun. Unfortunately such lawns are extremely rare in America. We are learning to appreciate them, and in time will have them, though the progress in that direction is slow; and I feel certain that nothing is more likely to aid in the development of a true knowledge of

the resources of lawn planting than the consideration of new hardy ornamental trees and shrubs, and their tasteful and effective arrangement.

MR. HUNNEWELL'S GARDEN AT WELLESLEY, MASS.

BY WILLIAM FALCONER.

NO. 1.

The garden of Mr. H. H. Hunnewell, at Wellesley, needs no introduction to American horticulturists; it ranks pre-eminent among private gardens. Wellesley is a town on the Boston and Albany Railroad, and some forty-five minutes ride from Boston. Mr. Hunnewell's garden is fifteen to twenty minutes walk from the depot. Some visitors like to walk there, others to ride from the station—the latter may find good and reasonable accommodation at a stable near the depot.

The garden comprises some forty acres, and is beautifully situated with the Waban lake on its north side, Wellesley College and its park-like grounds, and a wooded hilly country beyond the lake, and an uneven timbered country broken up with handsome and well-tilled farm lands all around. Before the south front of the mansion is a many-acred open lawn that in unbroken sweep reaches to the turnpike limit. Deciduous trees and evergreens are set as isolated specimens, groups, groves and avenues, towards the side out-edges of the lawn until they reach and form a part of the pinetum or rather arboretum. The terrace garden lies between the mansion and the Waban lake, as also the rockery and wild garden. There are some flower-beds near the mansion, but the main flower garden is a short distance off, somewhat of an oblong square in form; on two sides bounded by hedges, and on the others by a curving belt of trees and shrubs and a mixed border. The beds are cut out on grass, and the patterns in the beds portrayed by the plants used to fill them. There is a *Rhododendron* garden, an *Azalea* garden, a kitchen garden, and a village of greenhouses in which are grown handsome plants and lovely flowers and tender fruits. Mr. Harris, who is the gardener, is a man of fine professional talent, cordial disposition and gentlemanly bearing.

I cannot well refer in detail to so large a garden, but will confine myself to a few of its prominent features.

Greenhouse plants—include leading decorative sorts, and some of the choicest and rarest of

exotics. *Dracænas* are a specialty, and besides the *élite* of such kinds as may be seen elsewhere there is a house well-nigh filled with Wellesley seedling plants, at once remarkable for their exceptional beauty, substance and vigorous constitution. A bold, sturdy nature seems to pervade the whole race, and their coloring is deep and well defined. Some are named Mrs. Hunnewell, Waban, Bella and Harris, and others deserve countenance. When *Phyllotænum Lindenii* and *Alocasia crystallina* were sent from Wellesley to the Boston exhibition they were declared the finest examples of cultural skill that had been seen anywhere, and now Mr. Harris points out to me *Alocasia Thibautiana*, a young plant with leaves 16 to 20 inches long, deep crimson on the back, and broadly marked with silver on the front, and tells me this is the coming king. *Aralia spinulosa* is another novelty. *Bertolonias* glitter inside cases; *Hibiscus schizopetalus* is in bloom, so are *Dipladenias* fastened to the rafters, and many other seasonable plants. But for a winter show of blossoms what can be brighter or better than Zonal pelargoniums? Wonderful, New Life and C. H. Wagner are among the many in a greenhouse here; the others have too hard names in French for my remembrance.

Orchids.—Mr. Hunnewell has gathered together a large number of these, especially the freer blooming and more serviceable sorts. There are large pans of *Cypripedium Doyanum*, a handsome leaved as well as a pretty flowering plant, but more decided in the variegation of its foliage, is a companion specimen of *C. Lawrenceanum*. Several other species are in bloom, and on one plant of *insigne* I counted forty-three flowers. A very fine lot of *Phalænopsis grandiflora*, *amabilis* and *Schilleriana* were growing in a dark corner, and far away from the glass. The pots containing them were set upon empty pots that were standing in saucers filled with water; these act as evaporating pans, and at the same time prevent the approach of wood-lice, cockroaches, slugs and other insects that might injure the flower-spikes or roots. Mr. Harris expressed himself as averse to growing the mass of orchids up close to the glass, and quoted his *Phalænopsis* as an example of shadier treatment. We also remembered the splendid *Masdevallæa* at Albany, and which were the biggest and thriftiest specimens I ever saw, and they were grown right by the floor of a high greenhouse with apparently as little concern as if

they were palms or club-mosses. But notwithstanding these exceptional examples, I am in favor of nearer the glass.

The *Dendrobiums* were gathered together in a cool house to ripen their shoots. *D. Goldii* with terminal spikes of purple flowers, and *Formosum giganteum*, white and yellow, were beautifully in bloom. And in a little basket overhead I beheld *D. Brymerianum* with two shoots about eight inches and thirteen inches long—ten guineas worth; and near by the almost equally choice *Lælia anceps alba* with four flowers. It would take too much space to wander through the host of *Cattleyas*, *Calanthes*, *Odontoglossums*, *Oncidiums*, and other genera, but their uncommon thrift and vigor are well worth critical examination.

IPOMÆA GRANDIFLORA.

BY P. D. BARNHART, BANKSVILLE, PA.

On page 269, September number of *GARDENER'S MONTHLY*, you ask for some information about *Ipomæa grandiflora*. In reply, will say that I have cultivated it for the past five years and find it to be a very desirable plant for covering trellises, summer houses or verandas, it being a rapid grower, with large heart-shaped leaves, and the flowers, which are very large—seven inches in diameter—of the purest white and delightfully fragrant, expanding only at night. They begin to open—a curious sight to see—about 6 o'clock P. M., and close the next morning, to be succeeded by a new flower the following evening. It seldom seeds, but is a tender perennial of the easiest propagation. There is one peculiarity about its flowering stem that I have never seen in any other plant. The stems start from the axil of a leaf and continue to grow and produce blossoms the entire season. I have had them grow ten inches long, with no signs of stopping, when the cold weather cut it short. I may say that on that stem were produced twelve flowers. It thrives well in hot, dry situations.

On page 280, the question is asked whether any one knows where Teasel is cultivated in the United States. In our section of the State it is so much of a pest that it is with difficulty we get it exterminated. It crowds out grass, and the stems while in bloom are as hard as young hickory trees, and if cut before blooming they throw out a multitude of smaller heads later in the season, which necessitates two cuttings in a season.

I have made a rough diagram of a hot-bed which I find much better than the old style. First, for durability; second, the difference in cost of making; third, to regulate the heat at will. The arch and furnace walls only made of common brick, and the flue made of small stones which generally abound in this section of country.

BERMUDA GRASS.

BY ELBERT S. CARMAN, EDITOR RURAL NEW YORKER.

Referring to your note (page 341 GARDENERS MONTHLY) let me say: Early in the summer I received a sod of Bermuda grass about a foot in length by three inches in width from Tennessee. It remained in the office until thoroughly dry and apparently dead. It was then taken to the Rural Farm and planted in a very dry muck-and-sand soil. In a few days it showed signs of life, and in a few weeks was a mass of green, of a bright blueish-green color. It soon began to send out its short-jointed, wiry shoots in all directions, which grew on an average an inch and a half in twenty-four hours, rooting at each joint as they proceeded along the surface of the ground, easily making their way under stones, pieces of wood, etc., which had been placed to ascertain in how far these would obstruct or in what way change the growth. From so small a sod a little plot seven feet in diameter had formed by the latter part of August. It has bloomed freely during the entire summer, and is blooming now (November 12). While all other grasses were browned or killed by the severe drought which prevailed from mid-summer until mid-October, this retained its fresh, pale green color throughout. Its flowers are borne in spikelets of from three to five, two inches long, similar to those of common crab grass (*Panicum sanguinale*). Though nearly positive, it would neither seed nor prove hardy so far North, my object in the experiment was to settle those questions beyond doubt. You are aware how the rootstocks of couch grass (*Triticum repens*) grow. They run underground, rooting at every joint, from each of which another plant grows. The rootstocks (as we may call them) of Bermuda grass creep on the surface of the ground by preference, rooting like couch grass at every one of its joints. Though the leaves are narrow and short, this grass forms a network of roots, rootstocks, stems and leaves that soon become an entangled mat, and take complete possession of the soil.

EDITORIAL NOTES.

GOLDEN PLUME ARBOR VITÆ.—We are glad to find our excellent contemporary, the *American Agriculturist*, in the field with us against the European absurdity of long Latin names for mere garden varieties. It christens *Retinospora plumosa aurea*, "golden plume arbor vitæ." In this crusade against the absurd, it will, however, be necessary to guard against confusion. The names should be given at the first introduction, and then stick to them, just as Americans have done with the "George Peabody" and "Tom Thumb" arbor vitæ, in spite of European repudiation, and attempt to stick on the fearfully useless Latin abominations.

For some years past this *Retinospora* has been known as "Golden Japan Cedar," and it may be as well to decide at once which one of the two to retain, the old one or the new one suggested by the *Agriculturist*. In regard to botanical names, the decision is on the question whether it is best to have to learn for one plant one "hard" Latin name, or several score of "easy" English or vernacular ones.

AN AVENUE OF CRYPTOMERIA JAPONICA.—Mr. Maries writes to the *Garden*, that starting from Nikko, which is two days' journey from Yeddo, in Japan, there is an avenue of *Cryptomeria japonica*, along the roadside, extending for fifty miles. One of these trees, blown down, measured one hundred and seventy-three feet long. The common Brake fern of our country and Europe, *Pteris aquilina*, was also abundant in the Japanese forests here.

HISTORY OF THE MANETTI ROSE.—This variety, once very popular in America as a stock to bud garden roses on, is said, in a recent treatise on roses, to have been obtained "from Como by Mr. Rivers over thirty years ago." We do not know exactly what may be meant by "over" in this connection. Certainly a good many years over thirty years ago it was in common use about Philadelphia for stocks, and it is very nearly about that time since the force of public opinion caused florists to utterly discard it.

It has long been a matter of conjecture with us what this rose sprung from. A recent monograph of roses, by a distinguished Russian botanist, classes it with *Rosa sempervirens*, a native of Southern Europe. It may be, but the botanical characters agree exactly with our own native *Rosa lucida* in every thing except the

superior vigor of the Manetti, and it is very rare that a double variety grows stronger than the single original from which it sprang.

RAILWAY GARDENING.—The Boston and Maine Company now allows its station agents \$10 a year each with which to buy seeds, plants, etc., and offers prizes of \$50, \$30 and \$20 to the agent whose stations are best kept and present the neatest and most attractive appearance.—*Scientific American*.

FINE CHRYSANTHEMUMS.—At the November meeting of the Germantown Horticultural Society, some remarkably fine varieties of Chrysanthemums were exhibited by Mr. Walter Coles, gardener to J. I. Blair, Esq., of Belvidere, New Jersey. They showed that the improvement of this pretty fall flower has not yet been finished. These had the petals all of one uniform breadth, and all curved inwards regularly. The flowers attracted much attention. Mr. Coles is one of that class of gardeners whose intelligence and genuine love of his profession makes gardening so attractive to so many.

THE CACTUS DAHLIA.—Blooms of this new species, Dahlia Jaurezi, were exhibited by Peter Henderson at the November meeting of the New York Horticultural Society.

FLORIDA JUTE.—The mixing up of common names among numerous plants, is a fearful pest to the intelligent reader. The newspapers tell us that "a plant which grows wild in Florida—Florida Jute," produces an article "in tensile strength superior to Indian Jute," and that a

company has been formed in Philadelphia. Strangely, however, we are told in the same paragraph "seed has been ordered from India," although the "indigenous Florida jute" is so superior. At any rate what is Florida jute?

SCRAPS AND QUERIES.

INJURED BARK.—"L. W.," Philadelphia, writes: "Some vandal permitted his horse to bark two of my maple trees, both within three feet of hitching posts. The weather and growth of trees burst the strings with which I had secured a plaster of earth and cow dung, and I find the edges of the bark healed, but a good deal of bare wood exposed. Is there anything I can put on to prevent a rotting of this wood. The trees are about twelve years old and very healthy."

[It is best in these cases to paint the wood, to keep it from decaying, until the new wood and bark at each side grow over the exposed part.—Ed. G. M.]

A BLUE BEDDING PLANT.—"W. D.," Sandusky, Ohio, says: "Can you give me the name of a bedding plant that can be used in ribbon gardening, as blue, in making a banner or flag (Union), with acharanthus and centaurea for red and white, or any other plant, no matter what size. Please let me know, if this is not asking too much from you, for which I shall be thankful, and oblige."

[Do any of our readers know anything better than blue Lobelia?—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Flowers grown in pots often need re-potting while they are growing. This is an operation requiring much thought and care. As a rule there is more danger of a plant being in too large than in too small a pot. It may not grow well in a small pot; the leaves may not be of as dark a green as when it has plenty of earth to grow in. The trouble with a large pot and a small plant is that the water does not always run away fast enough. When this is the case small mould grows, or, as gardeners say, the soil gets

sour, and the young and tender points of the roots are rotted. The plant sickens and very often dies. In old times, say forty years ago, there were gardeners who prided themselves on their success with what they termed the "one-shift system." A plant would be taken from a thumb pot, and at once put into one six, eight or ten inches in diameter, and they often did succeed admirably. But it was very much like the effort of the celebrated driver, who loved to see the wheels of his vehicle go straight along within a quarter of an inch of the chasm, without throwing you a thousand feet down below.

You would prefer the driver who kept further away. These "one-shift" fellows had to use unusual care. One-third of the pot would be filled with broken pots or broken bricks, and the soil would be turfy, cut up into squares, or used in very coarse pieces. All these precautions enabled the water to pass rapidly away. It is safest especially for those with no pretension to skill not to re-pot unless the plant has a number of active roots, and to put it in a new pot not more than a half inch or an inch larger than before. The hole at the bottom of the pot should be carefully guarded so as to be sure it will not get choked. It is this which allows of the rapid escape of water, which is the great essential of successful plant culture. The soil for potting is usually one-third of sand, and this is to enable the water to pass rapidly away. For nourishment nothing is better, if it can be had, than thoroughly decayed cow manure. Any kind of manure, if thoroughly decayed, is good for pot plants. It is not easy to give special rules for different plants, though in some respects there are variations on which one might fill the whole magazine with rules. For instance we might say:

Tree Carnations. These now indispensable winter flowering plants, want a very light place to do well. They do not generally care about very large pots—about five or six inches—but they are very much benefited by rich manure water.

The *Calla Lily* is now extremely popular. This also loves light. It must have a good supply of water, and good soil to flower well.

Towards spring the *Cineraria* comes in remarkably well for cutting. This is a "queer" plant. It is one of the easiest to suffer from frost, and yet will not do well in a high temperature. It also requires much light, and to be very near the glass. So also of the *Pansy* and *Violet*, although some frost will not hurt these.

If *Pelargoniums* are wanted to flower well next May and June, they should be attended to, and grow well through the winter. They want a rather warm house to keep them growing, and should be pinched back as they grow, to keep them bushy.

A good supply of young *Fuchsias* should be coming on now—re-pot as their roots fill each pot, let them not want for moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown

should not exceed 55°. A turfy loam, moderately enriched with well decayed manure, and well drained with charcoal, suits them admirably.

This is only an illustration of what all plants require, and any one who gets the exact idea as to how to pot and care for plants, could adapt the rules given to these few items, to almost any other plant.

COMMUNICATIONS.

THE CINCINNATI FLORAL COMPANY'S ESTABLISHMENT.

BY WALTER GRAY, COLLEGE HILL, CINCINNATI, O.

Those who are conversant with horticulture will do well to pay a visit to this extensive plant establishment. In addition to the many thousands of new plants this enterprising company is forming a large collection of orchids and nepenthes, all of which are in remarkably fine health. There are to be seen some fine examples of *Dendrobium nobile*, which, with judicious treatment, can be flowered at almost any season of the year. *D. formosum*, *D. Jamecianum*, *D. Wardianum*, *D. thysisiflorum*, *D. suavissimum*, *D. Findlayanum*, etc., all making splendid growths, and many completed and put into their winter quarters to rest. The *Cattleyas* are also remarkably well grown, showing their many flower spathes for a good display of flowers next season. All the best varieties are grown, including the beautiful *C. Warnerii*, *C. gijas*, *C. intermedia*, *C. Mossiae grandiflora*, *C. Skinnerii*, *C. citrina*, *C. marginata*, etc., a long season of rest is very advantageous to these plants, causing them to flower freely and grow more vigorously afterwards. *Cypripediums* are also well represented. There are fine examples of *C. Sedenii*, a plant which, when established, is nearly always in flower. A most beautiful hybrid raised between *C. Schlimii* and *C. longifolium*; good grown plants of *C. Stonei*, *C. niveum*; *C. Harrisianum*, another hybrid raised between *C. barbatum* and *C. villosum*, exactly intermediate; *C. candatum*, *C. Lawrenceanum*, *C. venustum*, *C. insigne*, *C. barbatum*, all these varieties are well adapted for a warm greenhouse, as they are of easy cultivation, requiring a liberal supply of water at all seasons. The remarkably handsome *Cymbidium eburneum* is just showing its flower spikes. The pretty small-growing *Pleione lagenaria* is in bloom. This is frequently called the Indian Crocus. *Odontoglossum citrosum*, *O. Rossii*

majus, *O. vexillarium*, *O. Roezlii*, *Coelogyne cristata*, *Oncidium Kramerianum*, *O. incurvum*, *O. flexuosum*, *O. varicosum*, *Phalænopsis Schilleriana*, *P. amabilis*, *P. grandiflora*, and a large importation of *Lælia majalis*, with numbers of others, are in such condition of strength and vigor as is not usually met with. A fine stock of the New *Anthurium Andreanum*, an extremely attractive plant when in flower. It remains in perfection for three months, rendering it a valuable plant; the cultivation required is the same as *A. Scherzerianum*, of which the Cincinnati Floral Company have a large stock.

To give the public some idea of the importance of this collection, this company was awarded at the Cincinnati Industrial Exposition of this year no less than fifty-two first prizes for plants. Their *Crotons*, *Palms*, *Ferns*, *Pandanus*, *Musas*, *Marantas*, *Dieffenbachias*, *Caladiums*, were grand objects of cultural skill, filling an area of nearly six thousand feet in the horticultural hall.

A HOTHOUSE ALARM TO GUARD AGAINST FROST OR GREAT HEAT.

BY CHAS. DUDLEY WARDE, CONCORD, N. H.

To any one who has had the care of a hothouse during one of our terrible northern winters, the mere mention of a frost suggests hours of anxious watching and apprehension. I have sometimes thought that the pleasure taken in my hothouse during its first winter was more than counterbalanced by the constant anxiety and fear lest by some unforeseen circumstance the little silver column should drop below the fatal point, 32°, and in an hour the result of the patient labors of months, and the objects of my especial pride, should turn to blackness and decay. This fear grew to become a perfect nightmare, and my slumbers were frequently disturbed with visions of plants frozen and covered with ice. One cold night, after having made three visits to the hothouse to see that all was right, I resolved that something must be done, and commenced soon after to investigate the subject of electricity and its adaptation to burglar and fire-alarms. After a series of futile experiments, I obtained a small flat rod or bar about twelve inches long, three-eighths inch wide, and one-sixteenth inch thick, formed by a thin piece of brass and a similar piece of steel fastened securely together. This was suspended by one end being firmly fastened in a small block of wood placed on a board, and the rod

was so placed that the free end could swing back and forth and just clear the board. On both sides of the bar, and about one inch from it, near the free end a thumb-screw was placed, so that if the bar be moved it would strike the ends of the screws. The end of the bar was fastened, and the screws were so arranged as to be easily connected with wires. Now the well-known law of physics that "heat expands and cold contracts" is true in metals, but in a different degree, and by consulting the tables of the expansive qualities of metals it will be found that steel and brass are widely different in this respect, and in the arrangement above described it was found that when heat was applied the brass expanded more than the steel, causing the rod to bow, and the free end to swing in the direction of the screw on the steel side of the bar; and the application of cold caused the brass to contract more than the steel, and the bar to swing in the other direction. By testing this machine in various different temperatures, it was easy to make a scale, and to place the thumb-screws so that the end of the rod would touch them at any given point of temperature. Then obtaining a common electric call bell, and a battery, such as the telephone companies use (any good battery will answer, but this one is always in order), the bell was placed in my chamber, and the battery and machine previously described placed in the coldest part of the hothouse. One pole of the battery was connected by a copper wire with the bell, and from the bell the wire was carried out to the machine and connected with the end of the bar that was fastened, and the thumb-screws connected to the other pole of the battery. I then placed the screw on the brass side so that it would come in contact with the bar in case the thermometer should reach 40°, having previously found that the slightest contact would complete the circuit and ring the bell. After waiting about two weeks without hearing anything from the apparatus, I was startled from my chamber by the ringing of the bell, and hastened out to find that a sudden and severe change had lowered the temperature to 38° in the hothouse, and but for the increased fire that was added the plants would have suffered a bad chill, if not frozen before morning. This has been kept in operation for two years, and has several times saved my plants from total destruction, or at least from great injury. By adjusting the screw on the steel side of the bar too great heat is easily detected. Since thor-

oughly testing the alarm have come to put great confidence in it, as it can be regulated to within a single degree, and while absent or asleep my anxiety is reduced to a minimum.

TAR WATER FOR INSECTS.

BY D. M. DEWEY, ROCHESTER, N. Y.

In conversation to-day with a farmer friend, I got from him what I think every planter should know. As he is a reliable man, I give you his statement, believing you will confer a favor on many of your readers by publishing it:

Gas tar water sure death to potato bugs. Mr. S. R. Hart, of Brighton, N. Y., near Rochester, has for two years past used on his potato vines water which has been impregnated with gas tar. Two quarts of gas tar in a pail, and fill the pail with water; stir it up well, and let the tar settle. Then sprinkle the vines with the water from a sprinkling pot. This has proven more effective than Paris green. He has also tried it on currant bushes, and finds it equally effective. It is inexpensive and perfectly reliable, and no doubt will prove equally sure death to insects of every kind on trees. This gas tar can be had for \$1.00 a barrel, and one barrel would supply a whole township. I give you this information, believing your readers will find it a great desideratum in these days of insect pests.

EDITORIAL NOTES.

GROWTH OF PLANTS BY ELECTRIC LIGHT.—We do not know how the idea originated that plants do not grow in the dark, though the idea seems widely prevalent in Europe. In America it has been proved that Indian corn grows more rapidly by night than by day. In American cellars potatoes sprout, and all kinds of vegetables grow to our aggravation, if there is any heat much above the freezing point. True they require light to make a green growth, but the actual rapidity of growth is at least the same. It does not seem to be true in England, however, where they are much exercised over Dr. Siemen's experiments with the electric light. The doctor has a large forcing-house, in which are many kinds of fruits and vegetables which mature during the winter. There has to be a steam engine to make the electricity which gives the light; and the waste steam from the engine, condensed, gives hot water, by which the temperature is kept at 60 degrees.

So far as we have been able to gather from Dr. Siemen's experiments, they are not comparative. The electric light was kept all night in his forcing-house, and under this perpetual brightness by night and by day, the crops were wonderfully productive and remarkably satisfactory. This is all the experiments amount to. There was not another house just alike, and under the management of the same excellent gardener, to show how much better the lighted house was.

So far as the electric light on the growth of plants is concerned, we do not feel that it will be of great value in our culture, not only because plants grow as well in the dark, but because the means of communication between the tropical and the arctic portions of our country are so perfect that we can have the rarest summer fruits and vegetables on our tables while zero winds are blowing on our homes. Forcing-houses are not as popular as in the old world. But there is great value to us in Dr. Siemen's experiments as showing how the introduction of the electric light may be made use of in heating greenhouses. As a general rule it will not pay to buy and run a steam engine for lighting our country homes instead of gas or oil; but if at the same time we can heat our greenhouses with the waste steam, or make the engine useful in other things, it may come into general use.

SICK TREES AND FLOWERS.—Mr. Walter Elder, of Philadelphia, makes the very good point that the knowledge obtained from long experience and close study of the laws of health in vegetation, is deserving of as much pecuniary reward as, at least, the knowledge required for sick animals. There should be physicians of trees and flowers, as well as doctors for horses, cows, dogs and cats. And we have no doubt that people would be just as willing to pay for good advice for a valuable plant as for a valuable animal, if only those who have the knowledge would charge for their advice and services. There is Mr. Elder himself, for instance, who has for so many years contributed of his knowledge freely to so many periodicals, could render valuable assistance to his Philadelphia amateur friends in this way. There is no reason why he should not be consulted and paid for his advice. We have no doubt it would be well worth the small fee he would charge.

TUBEROUS ROOTED BEGONIAS.—An Upland (Pa.) correspondent of the *Ridley News* gives a highly

interesting account to that paper of the remarkable manner in which the tuberous Begonias have been improved by a Mr. Tipping, of Nottingham, England.

CHOOSING HYACINTHS.—A correspondent of the *Garden* says: "Nothing, I am told by an eminent seedsman, amuses the trade more than the prejudices of gardeners on the subject of Hyacinth bulbs. Customers come to the shop and pick out the largest roots only, while others will only have the heaviest and pay no regard to the size. Both, my informant says, are mistaken in thinking they are securing the best blooms by their choice in this way. It is getting much like trying to determine the sex in eggs, but, as a rule, those bulbs which are high in the shoulders produce the best blooms, and it is said that the German bulb growers select these when they wish to produce fine examples of culture. Some of the ugliest and most lumpy-looking bulbs they say do best."

A ROYAL BOUQUET.—Success in floral arrangements—whether such consist in their disposal in a vase, a bouquet, a button-hole, or any of the many ways in which flowers are now so much used—depends upon the taste of the individual engaged in the work. A combination of the most graceful forms and beautiful colors which the world of flowers affords ends in failure unless the executant is possessed of a naturally artistic eye. Amongst those who stand out as particularly successful in the leading competitions with bouquets is Mr. Cypher, of Cheltenham, whose productions—made by his daughter—are invariably illustrative of correct taste alike in the combination of form and color of the flowers used as in their arrangement. On the recent visit of the Prince and Princess of Wales to Chepstow, Miss Cypher had the honor of presenting a bouquet to the Princess, which was graciously received by Her Royal Highness. It was composed of Gardenias, Stephanotis, white Lapagerias, *Eucharis amazonica*, *Dendrobium formosum*, *Odontoglossum Roezlii*, *O. Alexandræ*, and the violet *Cattleya Loddigesii*, intermixed with the ferns *Gleichenia rupestris* and *Maidenhair*.—*Gardener's Chronicle*.

NEW AND RARE PLANTS.

FINE WINTER FLOWERING CARNATIONS.—Mr. A. D. Mylius tells us that the most popular varieties for growing for cut flowers in Detroit

are Heinze's white and Heinze's red, which are local varieties, having been raised some years ago by Mr. Heinze, florist of that place.

Mr. H. takes great interest in raising carnations, as well as importing all the best kinds that can be obtained from abroad.

CYMBIDIUM Eburneum.—The increased attention given to orchid culture in the United States renders any information about them particularly desirable. Some of them are particularly handsome, and many of these have in addition a delightful fragrance of the genus *Cymbidium*. One species, *C. alofolium*, is not uncommon in American collections, where it is highly appreciated for its delicious fragrance, though the dull brown flowers are not showy. In this species, *C. eburneum*, we have one which not only has the same odoriferous trait of character, but also large waxy white flowers. It has been introduced through the efforts of Mr. William Bull, of Chelsea, near London, England, and will, we think, become an universal favorite. See cut.

SCRAPS AND QUERIES.

EUPHARIS AMAZONICA.—A Philadelphia correspondent says: "I have about three hundred blooms now out, and have a specimen with fifteen flower stems. To my mind nothing can be handsomer."

NEW COLEUS.—"T. W.," New Albany, Ind., says: "Enclosed please find a leaf of our new Coleus, which is a sport of the Kentish Fire. We have kept it all summer, and find it good in every respect. It has not gone back in any instance. Also find a leaf of our new seedling Begonia. Will be glad to have your opinion."

[The Coleus is very good. Its value for bedding will have to be decided by competition with others already known. Begonias of the *Welttoniensis* class sometimes come with spotted leaves like those sent.—Ed. G. M.]

MEDINILLA MAGNIFICA.—"P." asks: "Will some of the readers of the MONTHLY please be so good as to give me some information concerning the treatment of *Medinilla magnifica*?"

ODONTOGLOSSUM CERVANTESII.—"F." asks: "Will C. H. S. please give me a few hints as to the cultivation of *Trichopilia suavis* and *T. tortilis*, also *Odontoglossum Cervantesii*?"

BEGONIA SCHMIDTII.—"C. E. P." says: "If any

of the readers of the MONTHLY have had any experience with, or can give me any informa-

SEEDLING COLEUSES.—John S. F., Evanston, Ills., writes: "By this day's mail I send you two



CYMBIDIUM EBURNEUM. (See opposite page.)

tion concerning *Begonia Schmidtii*, I would esteem it as a great favor."

of my seedling Coleuses, which I think are an acquisition to our list of Coleus; they are good

bedders. I had them planted out fully exposed to the sun, and they never burned. The yellow variety is dwarf and bushy, the other not so much so. Give your opinion of them through the MONTHLY and greatly oblige."

[The Coleuses are very good, but the full value for bedding will have to be decided by competition with others already known.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

PLUM STOCKS FOR PEACH TREES.

BY W. C. STRONG, BRIGHTON, MASS.

As you invite testimony on this question in your November number, I give my limited experience. The growth of Myroholan stocks is so vigorous that I was tempted to bud the peach upon it, three years since. The buds have taken only fairly well, and the subsequent growth has disappointed me. The stocks have been on heavy and also on upland soil. Though I do not yet abandon the trial, yet the indications are not favorable for a vigorous and healthy growth. On the other hand, the white and pink almond and *Prunus triloba*, as also the varieties of plum, make a very strong growth on this stock. This season, I have budded into the Damson and St. Julien stocks, but as yet cannot report results. These experiments have been made on a considerable number of stocks, in order to arrive at a definite conclusion. For it has seemed to me reasonable to expect that the plum stock would give exemption from the fungus which we call yellows, and also might give us a more permanent tree, and in heavier soils than the peach stock will thrive in. Considering the common European practice of budding upon the Musclee stock, it is surprising that this question has not long since been tested and decided in this country. It seems to me that no other question in fruit culture is so important, at the present time, as this. If we can find a plum stock which suits the peach, and will give us exemption from this greatest drawback to peach culture, the yellows, and may possibly add some other advantages, then indeed shall we make an immense advance in our art. I can think of no field so encouraging for experiment. In this connection, and as a warning to make haste slowly, and also because I owe it to the public, I must state that

my experiments in budding the pear upon a strong seedling of *Cydonia* (or *Pyrus*) *japonica* have proved disappointing. The buds grew well the first season, and some varieties have continued to grow for the second and third seasons. But, the indications are plain, after several years of extensive trial, that there is a want of congeniality between the stock and the cion. Of course, everybody is now wise enough to see that a *Pyrus communis* will not thrive on a *Pyrus japonica* seedling, however strong it may be. Well, I am content to be a martyr for the public good. For one, I confess that I did not know until the trial was made.

PLUM STOCKS FOR THE PEACH.

BY H. F. HILLENMEYER, LEXINGTON, KY.

I notice an inquiry from "A," Union Spring, N. Y., as to the value of plum stocks in the propagation of the peach.

Eight or ten years ago we worked a small lot on native and imported stocks, part of which were sold, and part planted on our own grounds. Of ten varieties planted in our own orchard, all are gone, except two Oldmixon Free trees. None of the trees did well. The growth was dwarfed, and the crops, though full, were inferior. The fruit, in quality, did not compare with that of the same variety grown on our peach roots. The trees were not altogether exempt from the borer; none developed a tendency to the yellows, but seemed to perish from an unsuitability of the stock.

Some of these trees, planted on tenacious clay, deemed unsuitable for the peach, on its own root, have done no better. The same experiment, made by my father, twenty years before, on different soil, developed exactly the same results. Peach on its own root does well here, and if pruned and kept free of worms will generally last twenty or twenty-five years.

THE TRUTH AS APPLIED TO TREE AGENTS.

BY CHARLES FREUND, GENEVA, N. Y.

Having recently noticed in your magazine, also in the *New York Weekly Sun*, some remarks in regard to tree agents, it would seem, notwithstanding the ingenious letter written by a Rochester dealer, and which you published a short time ago, that the plain truth had not been stated.

You qualified your remarks, by stating that the public need not be afraid to purchase from the authorized agents of responsible firms; but, unfortunately, the public is not very discriminating in its treatment of tree agents; as a rule, classing them all alike, and in sections, where some man has misused them, it makes no difference how good a firm a man represents, he is classed as a fraud.

The writer of the article in the *Sun*, with all due respect to his literary abilities, proved, by his sweeping and ignorant abuse, that he knew as little of the manner in which nursery stock is sold, retail to the public, as the buyers know themselves; and it would have been but simple justice, on his part, to have, by proper inquiry, placed the blame and fault where they properly belong.

The majority of tree agents are employed by nurserymen and dealers, and therefore, in view of foregoing facts, it is plain to be seen that, in the present state of the case, the public are more than likely to make the many suffer for the faults of the few, and thus inflict a great and too often irreparable injustice on an honest and hard-working class of men.

The only tree agents who can swindle the public are those who sell for themselves, and they constitute a very small portion of those engaged in the business, probably not the one-hundredth part. These men, being irresponsible and having no reputation to lose, sell for just such prices as they can obtain, irrespective of the market value of nursery stock, and when they come to purchase what they have sold, often find that they cannot fill their orders with genuine trees, except at a loss, and then, perhaps, as a not unnatural consequence, they buy whatever they can obtain the cheapest, and make such as they purchase take the place of what they have sold. The greatest, as well as the most innocent, swindler in the tree business is the harmless little label, and if it could only

speak what trouble it would cause—what fraud it would expose.

The remedy for the fraud practiced in the tree business is in the hands of those who have its welfare at heart—the responsible nurserymen and dealers throughout the States, and if they would but use their influence to prevent all wrong-doing, the nursery business would be elevated to the position that its great usefulness, and the many benefits it confers, justify it in holding.

The agents who represent nurserymen and dealers cannot swindle the public, for the reason that they neither grow the stock they sell, nor pack the orders they take, and being, as a rule, when they engage in the business, inexperienced as to the values of the various varieties of fruits that they sell, tell people just what their employers instruct them to say, or what the descriptions of the various plates they have in their books, represent such fruits as they describe to be.

If there is any swindling done here the agent is certainly not the guilty party.

The public is, like nature, very cruel, and often makes assertions that it cannot sustain. As a rule, a man who buys trees, and who for want of proper care loses them, considers that he has been swindled, and consequently calls the agent who sold them a fraud. Nine-tenths of the people who purchase nursery stock give it little or no attention, and seldom if ever plant it properly, and as a very natural result lose most of what they purchase; and this accounts for nine-tenths of the so-called swindling on the part of tree agents. The other tenth may be ascribed as explained in this letter, or to the persistent resolve of the public to buy trees from those who can tell the biggest stories and sell the cheapest, irrespective of whom they are buying from; they have yet to learn, at least in the nursery business, that the cheapest is not always the best; and as soon as our pomological societies can make the public understand that the value of a fruit is not to be measured by the size of the tree on which it grows; that all trees do not grow straight and large; that nature, and not the nurseryman, shapes them; that trees will at times die from natural or unnatural causes, such as excessive drought, cold, &c., for which the nurseryman, being but human, is not to blame, just so soon will they cease to make most of their complaints of having been swindled. The act of delivering any tree that is not

perfectly straight, to some people, is quite sufficient cause to them to complain of being swindled.

Let us be just to the tree agent, so that he may not be prevented by wrongful accusation from earning his livelihood; and let us also endeavor, through the powerful mediums of the press, that are directly connected with the business, and of which your magazine is such an able representative, to instruct the public what is best for them to plant, in their section, and also from whom they should purchase—viz., responsible men, or their authorized representatives only.

To obtain reform we must first have reformers, and the most needed reforms in the tree business are the following:

1. Education of the public, by means of the press and pomological societies, as to the nature of trees and plants; their various habits, their adaptability to different sections of country, and to the important fact that they should purchase only from responsible parties, or their authorized representatives, who can if necessary prove their responsibility.

2. Public and prompt exposure of all known frauds in the business.

3. Sufficient testing of new varieties before selling them.

4. Honest and careful discrimination in selling varieties best adapted to different localities.

We live in a practical age, and men will readily learn what it is to their advantage to know.

I ask you to publish this letter in the interest of and in justice to a vast number of men whose appellation of tree agent makes it, at present, difficult for them to reap a just return for their labor, and who I am sure will gratefully thank you, for any effort on your part to place their position properly before the public.

EDITORIAL NOTES.

STEALING FROM GARDENS.—It appears that in England as well as in America, there are lawyers and judges who do not know the law. In a recent trial for stealing hot-house grapes, the prosecuting attorney said:

"It was a part of our law that a man could not be charged with stealing growing grapes, and as these had been cut from a vine, the prisoner could not be charged on that account. But a pair of scissors had been stolen from the same

place and at the same time, and therefore he would be tried on that charge."

The judge regarded this as good law, and for stealing a pair of grape scissors the prisoner was sentenced to three months' imprisonment.

In spite of this "whipping the devil around the stump," the English law stands as follows:

"Sec. 24th and 25th, Vic., Chap. 96: Whosoever shall steal or destroy, or damage with intent to steal, any plant, root, fruit, or vegetable production growing in any garden, orchard, pleasure ground, nursery ground, hot-house, green-house or conservatory, shall on conviction thereof before a justice, either be committed to the common gaol or house of correction, there to be imprisoned and kept to hard labor for any term not exceeding six calendar months, or else shall forfeit and pay over and above the value of the articles stolen or the amount of the injury done, such sum of money, not exceeding twenty pounds, as to the justice shall seem meet."

SHIPPERS AND GROWERS.—Mr. M. T. Brewer of San Francisco, in an address before the California Horticultural Society, contended that the fruit grower should consider the interest of the shipper his own interest. As it was, some fruit growers did not deal fairly—mixing inferior fruit with good fruit in the crates, or otherwise practicing deception, or "want of thought," by which the shippers lost trade, and eventually the growers. Honesty is the best policy in all cases, but especially when it is necessary to do business through an agent.

PAINTED LABELS.—The writer was just in from puzzling over some "tree labels," just after a rain shower. These labels had been written less than two weeks, and were almost illegible. On the table were some samples of "machine painted labels" from the Penfield Block Company, of Lockport, and they were there just in time to impress in the most emphatic manner their immense value. It will not be long before the tree seller who does not use these labels will be regarded as a fossil of the most indurated type.

BAD NEWS FOR TOBACCO RAISERS.—After a careful investigation by disinterested scientific men, the French Government has concluded that the use of tobacco interferes with the mental faculties, and general ability to study, and has prohibited absolutely its use in all the Government schools. It is also said that no regular smoker ever took the highest degree in Harvard, and the authorities there are inclined to look into it.

GLOUT MORCEAU PEAR.—The *Garden* quotes *Dictionnaire de Pomologie*, as authority for the state-

ment that Glout Morceau is the same as Beurre d'Arenberg, and gives it as but a synonym of the latter name. Years ago this was discussed in America, and the conclusion reached that they were different fruits. Yet it is remarkable that no one is able to give any separate history to the Glout Morceau. It is said that Parmentier gave it the name temporarily, because the original name was lost.

BEES AND GRAPES.—The honey bees, like many other creatures, seem to profit by experience, and grow wise in their generations. Every year there is increasing trouble in Germantown gardens from the ravages of bees on grapes. We never knew the fruit to be so badly injured as last year by them. It may be that the very dry season was unfavorable to clover, and other blossoms, and they were driven by necessity to feed on the grape. But however this may be, we fear they will not forget in the future how good grapes are. To be sure, a bee only lives one season, but we suppose an acquired habit is in some degree hereditary.

CURING THE YELLOWS IN THE PEACH.—There is a prevalent belief that when a tree once has the disease known as the Yellows, it can never be cured. Yet we frequently read of apparently well authenticated cases of cure. When these are brought to the attention of practical men, they shrug their shoulders and say, "The tree probably had yellow leaves from starvation, or from injuries from the borer, and not the disease known as the Yellows." Does any one know of a case, recognized by those who know, as being diseased, that ever recovered, either by being left to nature or through any supposed treatment?

IMPROVED CRANBERRIES.—Few fruits have greater commercial importance than the Cranberry. Those who labor for improvement in them deserve credit. Some varieties are better able to resist unfavorable circumstances than others. Some are earlier, some larger, and others again more productive. There are many fields in which improvements may be worked out. Among varieties well spoken of, are "Eaton's Bell" and "Mansfield Creeper." The former ripens in Connecticut by the 5th of September.

NEW VARIETIES OF FRUIT.—Mr. M. S. Combs, in a paper read before the Kentucky Horticultural Society, asserts that it is far better to spend a little pains in crossing, than to rely on chance

seedlings for the improvement of the varieties of fruit.

WEARING OUT OF SOIL.—Our farmers and gardeners in the West who regard the soil worn out after they have taken twenty years of crops without manure, from them, must not lose heart. An exchange says that around Shanghai in China, the ground has been cropped for "countless generations," and is as good or even better to-day than it ever was. When nature has done with the ground, art can recover it always. Man is greater than nature when he sets himself to work.

PEACH YELLOWS.—W. K. Higley contributes to the *Am. Naturalist* a paper on the scientific study of the disease known as the "Yellows," in the peach. His conclusions, however, do not seem to have any direct connection with his experiments. "Care must be exercised in cultivation, pruning, &c.," and the yellows come "from a lack of phosphoric acid and potash." Just what this "care" is to be; what kind of "cultivation" is to be practiced; how the "pruning" is to be done; or what the "*et cetera*" is to cover, is not quite clear, and it is just possible, though this paper appears as a contribution to science in an able scientific serial, that the author does not quite know himself what he means. Certainly we do not.

HENDERSON ON DELUSIONS.—Few men keep doing so much for horticulture as Mr. Peter Henderson does, by his shrewd, practical common sense. He may sometimes get wrong, but he is generally right, and always does good. In a recent paper on "Delusions," he shows up the notion that plants in sleeping rooms are injurious; that money is to be made from the business without practical knowledge of the business; that there is much special virtue in special manures for special crops; that plants take more nitrogen from insects than they can get from the atmosphere in the ordinary way; that the production of variegated leaves by inoculation is a proof of the truth of graft-hybridism, and some other notions of similar character. Let us hope that Mr. Henderson will keep at it. There is plenty of such work to be done yet.

THE KIFFER PEAR.—We are watching with some interest the behavior of this interesting hybrid, as it comes into bearing in other than its original locality. The editor of the Germantown *Telegraph* reports on some which he has had this season, and which he reports favorably, as to

quality. The editor of *The Country Gentleman* has had some from New Jersey and from Rochester. Of the former he speaks favorably; the latter were poor. We have had some on our table this winter that were delicious—and some from the same grower that were as poor as poor can be.

NEW OR RARE FRUITS.

TOMATO—PRESIDENT GARFIELD.—This is the title of a new tomato advertised in Germany. All the information we can gather concerning it is that "it will not fail to cause a great sensation."

PEACH—DYER'S JUNE.—This is a chance seedling which was found near Ava, Missouri. It is said to be a good addition to the early kinds. It is three inches across, which is a good size for an early peach. Unfortunately it is a cling-stone.

RUBY CURRANT.—The *American Garden* has a pretty illustration of this variety which was raised by Mr. Jacob Moore, the originator of the Brighton grape. The branches, as represented here, are five inches and a half from their attachment to the branch to the terminal berry. Mr. Hooker—excellent authority—vouches for its superiority. The berries, though not so large as either the Versailles or the Cherry, are next to them in size, with the advantage of larger bunches and better fruit. It was raised from the Cherry, believed to have been crossed with the White Grape.

THE TWO SISTERS PEAR.—Pears and other fruits are so often named after the raisers, discoverers, or places where found, that it is worth noting when one can be named after some peculiarity of its own. The "Deux Soeurs" is a French variety, raised by the two Misses Knoop, of Malines, and which at the same time usually has the fruit appearing in pairs. It is allied to the Marie Louise class, and may therefore not be of great value in our country, where they are no sooner ripe than the *Florist* and *Pomologist*.

SCRAPS AND QUERIES.

PROGRESS IN RASPBERRY CULTURE.—Mr. N. Ohmer, of Dayton, Ohio, writes: "Raspberries are attracting much more attention at this particular time than ever before. Raspberries have

always been appreciated more or less on account of filling in the place nicely between strawberries and blackberries. It is a fruit much admired by many, though never so popular as the strawberry. Up to within a few years there were but few varieties. The Red Antwerp, American Black, or common Black Cap and Brinkle's Orange, were popular as far back as I can recollect. As much improvement has been made in late years in the raspberry as in any other fruit; we are now not confined to three or four varieties, but varieties of distinguished merit can be counted by the dozens. I have grown the raspberry more or less since I have been engaged in fruit culture, now twenty odd years, but never to the same extent as at present. I now plant largely of them, because I find their culture profitable. I can and do grow raspberries almost as cheaply as I do corn (not counting the cost of gathering), and any of you can do the same if you have suitable soil, varieties, and understand the proper mode of culture.

WINTER NELIS PEAR.—We made a note of the superior reputation the Winter Nelis Pear had achieved about Rochester. The ink was scarcely dry before a sample came to hand from Ellwanger & Barry, and they were indeed worthy of all that had been said about them. With them were samples of Josephine de Malines, and the Jones' Seedling, also remarkably fine. We believe E. & B. were chiefly instrumental in making the last known, and it surely does credit to their good judgment.

GROS COLMAN GRAPE.—"G. H.," Yarmouth, Mass., says: "Please let me know in your *GARDENER'S MONTHLY* of Gros Colman grapevine. Will it do for a cold grapery, quality, color, size of bunch?"

[The Gros Colman grape is not considered a first-class variety for a cold grapery, and it does not stand as the highest for warmer houses.—Ed. G. M.]

JAPAN PERSIMMON.—Mr. P. J. Berckmans writes: "I send by mail two specimens of Japanese Persimmons. The large is Tanenashi or Seedless, not ripe, but may become eatable in a couple of weeks. Fruit is not more than two-thirds the size it attained last year, owing to protracted drought.

"The small one is Kurokume, and will be ripe in a few days. I notice that birds begin to find them out. This specimen is one of fifty-five,

grown upon a tree planted in March, 1880, and now $3\frac{1}{2}$ feet high. It is one of the smaller varieties, but of excellent quality."

[Hard worked editors cannot get around to see all the new things as they would like to do, and are always grateful to those who help them to keep their knowledge up to the times in the kind manner Mr. Berckmans has done. It was

a pleasure to see such fine fruit. One of them weighed $6\frac{1}{2}$ ounces, and was exhibited to the Germantown Horticultural Society.

We have tried, and know others try, many varieties near Philadelphia, but all have been killed to the ground by the winters; but why can they not be grown in tubs as oranges and lemons are?—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

TIMBER IS KING.—Prof. P. W. Sheaffer, of Pottsville, in his excellent paper on the geology of Schuylkill county, says: "In Schuylkill county we are specialists. We are dependent on one substance; coal is king." We fancy after awhile it will be found in Schuylkill county that timber is king. It is not possible to work a coal mine without timber. Of *Pinus rigida* alone enough is used by one company in that county in one year to reach, if the logs are placed end to end, from the Atlantic coast to the Pacific.

Forests will soon have to be planted there in an intelligent manner, or coal will no longer have regal honor.

PROTECTION TO FORESTRY.—The United States Government is already doing much to protect the lumber interest in so far as it concerns the destruction of our forests, and there can be no reason why it should not recognize the same principle in the encouragement of new plantations. While farmers and fruit-growers have to build their own railroads, or construct their own canals, the Government spends money for the sole reason that the forest-owners may get their timber to market. Immense sums of money have been spent on the Guyandot River in West Virginia, for no other reason than improving on raft navigation.

PROTECTION OF FORESTS A NECESSITY.—By S. Van Dorrien. New York: B. Westerman & Co. This is a pamphlet of thirty-one pages, which goes over and over again the same old story: trees, clouds; clouds make rain; rain makes springs; springs make rivers; rivers make seas; seas make universal prosperity. Well, everybody knows the story. What is really needed is

not sermons of this sort; but to know what is the best method of encouraging timber culture? It is a pity some good, practical mind does not turn its attention more to this matter, and to ease the minds of the poets and philosophers, who are forever urging that "something must be done," but leave to others the work of doing and paying for it. We read carefully through this pamphlet to get some good idea as to what ought to be done. To our amazement, the only comfort after reading thirty-one pages is the assurance that "what is to be done, must be done at once."

There is one satisfaction, however, in reading it; we may learn what not to do. If there is any special object in the author's mind as he wrote, besides the furnishing of a pen-portrait of an arboreal Jeremiah, it is that our Government should do something,—something because foreign governments have done something; but a careful reading of what he tells us about the action of foreign governments, shows their action to have utterly failed to be of the slightest benefit. No one would for an instant want to have repeated here what has been attempted there. Strange to say the writer seems to sympathize with the tremendous tyranny and oppression which has often been attempted under the name of forestry laws. He takes occasion to reflect on the "demoralizing penuriousness of the agricultural classes," who seemed to think they had the same right to try and make all they could from their land as the mill-owner would from his mill; he thinks it scandalous that the farmer should "loudly demand indemnity" for being compelled to keep his land in forest when it would pay him so much better to make grazing ground of it; and he can scarcely find language strong enough to characterize his detesta-

tion of the "narrow-mindedness which was reluctant to make a personal sacrifice for the interest of all." He looks back lovingly to the time in France when the "Church and religious institutions," and great land-holders in their interest, had possession of most of the lands of France. Then they had forests indeed! and the happy owners would hunt and sport to their heart's content.

Fortunately, these views do not suit our American atmosphere. We want timber because we have use for it; we want planting encouraged where it can be done with some show of being within no remote time useful. We do not want to tax ourselves too heavily for the benefit of posterity; but it is the duty of governments to look after that which private enterprise will not do, when it bears on national prosperity; but no American wishes that all the cost of this national work should fall on the "penurious farmer." They are all willing to lend a hand, and would rather raise a "penny subscription from every American," than be charged with injustice.

LUMBER IN VIRGINIA.—The Chesapeake & Ohio Railway is now consuming lumber and timber at the average rate of 600,000 feet a month. In the seven past months of this year, its consumption has been 4,200,000 feet, brought mainly from along its line in West Virginia. Much of this has been used in the Newports-News extension.

A LARGE WHITE OAK.—A white oak tree recently cut in Salem County measured six feet and two inches across the stump. Trees of this size are now scarce in South Jersey; or East Jersey either for that matter.—*N. J. Mirror.*

WATERS OF LAKE ONTARIO.—The daily papers say that:

"No little concern is felt by persons interested in the harbor accommodations of Lake Ontario by reason of the assured fact that the level of the lake has fallen steadily, and in a marked degree, for many years. The records have been accurately kept, and leave no room for doubt. Many wharfs in many ports were formerly accessible to vessels which cannot now come near them. The entrance to the harbor of Toronto has been kept open only by means of thorough dredging, and now, when rock bottom has been reached, there is scarcely enough water to float the largest of the vessels which seek to pass. Various explanations for the subsidence of the water have been offered, but none of them seems to be adequate."

In these cases geological reasons are usually satisfactory. A change in the streams which flow underground, make a great difference in the flow of a lake. But it will be in order to have the above paragraph in the next treatise on forestry.

FOREST FIRES.—Ontario is said by the daily papers to have lost \$10,000,000 by the forest fires of last season,—and next year, and another, and another, she will probably lose \$10,000,000 every time. And yet all this may be avoided by spending a few hundred thousand dollars in carefully keeping down underbrush; and insisting on the burning at once of the waste from forest clearings. But somehow it seems both to Canadians and Americans much easier and more humanitarian to raise half a million dollars to give to the widows and orphans of sufferers by fire, than to spend a quarter of a million in preventing their homes, with the fathers and husbands, from being burned up. It is a funny world, especially where it is about forestry.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

SCIENCE NOTES.

BY PROFESSOR T. C. PORTER, EASTON, PA.

In a recent number of the MONTHLY you say with a doubt, that you encountered the famous potato bug on the plains of Colorado in '71. In '73 I saw a stalk of *Solanum rostratum* in a new street on the outskirts of Denver, covered with

them, and saw them also on the same plant at a railroad station of the Kansas Pacific, between Salina and Denver.

Is *Campanula rotundifolia* to be *Hair-bell*, or *Hare bell*? The Origin of the name should determine that. I see no connexion between the flower and the hare. The plant grows on steep, rocky cliffs, which hares do not frequent. Nor do I see any connexion between the flower and hair, except the remote supposition that it might have

been so called because used by ladies to adorn their hair, or because the slender peduncles have a capillary look. My own conjecture is that the name is a corruption of Air-Bell, confused through similarity of sound with the true Harebell, which is probably a *Muscari*. Looking up at them from the base of a cliff, as I have often done in my walks about Easton, the tiny bells of *Campanula rotundifolia* appear as if suspended in the air on invisible threads, and might well suggest the name. Why not adopt it and so write it?

EDITORIAL NOTES.

WORK FOR NATURAL HISTORY CLUBS.—In young clubs it should not be a point to get new facts, so much as to familiarize the members with common ones. This is best done by each member making original observations and repeating them, instead of studying from books. We were much interested in the way this is done in the Agricultural College at Lansing, Mich., as reported in the *College Speculum*.

"An illustrated paper was presented on 'A Comparison of the Flowers of Apple Trees with those of Pear Trees,' by F. F. Rogers. In general the apple flowers are larger than those of the pear. The sepals of apple flowers are shorter and broader than those of the pear. In both the sepals are more or less woolly. The sepals of pears are at least half as long as the petals, and are usually quite long and taper-pointed. Their stamens are not very unlike. The most marked difference is seen in the styles. In the case of the apple the styles are united from one-fourth to one-half of their length, forming a stalk or stipe; while in the pear the styles are distinct to the base. The calyx tube of the pear is somewhat globular, while that of the apple is urn-shaped."

Here is information, communicated by a college student. The facts, no doubt numbers have seen, but which very few, probably, really knew.

CALOCHORTUS.—The common name in California is Mariposa Lily. In Colorado, Dr. Newberry says, the two species *Calochortus Nuttallii*, and *C. Gunnisonii* are known as "Black-eyed Susan." The Indians of Utah call it "Sego."

HYGEINIC VALUE OF *JUSSIEUA GRANDIFLORA*.—Dr. Cartwright of Natchez, attributes the exemption of some districts of Louisiana from malarial fevers to the abundance of this pretty, creeping aquatic plant. We feel bound, as news-gatherers, to record this piece, because it will no doubt have wide currency, but have to confess that we

see no other ground for the doctor's opinion than because it so happens that this plant grows there. Probably hundreds of other plants are abundant there as this; and even then the abundance is no proof of value.

TORCH LILIES.—The great objection to common names is that they become so very common that each plant gets a score, and no one knows what the other person is talking of. It is not altogether because names are hard that English ones are chosen, but because the Latin ones seem too learned for common people. What is easier than *Tritoma*? yet our people made it "hot poker flower." Not to accept a name from Americans the English christened it over again. They name it "Torch lily," according to Mr. Robinson's *Gardening Illustrated*. But in Mr. Robinson's new book it is again named "Flame flower." We see by these illustrations that however easy it may seem, and desirable to accomplish, it is impracticable to make any reforms in this manner. We hope our good friend, the *Garden*, will pause in its efforts in this way.

MALARIAL FEVER.—We are often misled by names. Malarial fever has nothing to do with malaria as we used to understand it—gases from decayed matter along rivers and in marshes. A letter from Las Cruces, in New Mexico, now before us, speaks of the alarming extent of malarial fever this year, in a country usually as dry as dust.

FLOWERING OF BERMUDA GRASS.—Dr. G. W. Smith, Canton, Miss., says:

"I think you are mistaken in regard to the common belief as to the flowering of the *Cynodon dactylon* in the South. It is not that the grass produces no flower spikes, but that it does not perfect seed; and when it is not kept down by grazing, it produces, on good land, flowers in profuse abundance, but diligent and repeated search has failed ever to find a seed."

INTRODUCTION OF THE CAMELLIA.—In a recent article we showed the strong probability that the weeping willow was introduced to Europe from China by the Dutch, when they enjoyed the exclusive privilege of trade with China in the earlier times. It is known that the camellia came in that way. It was first carried by them to their settlements in the Philippines, and brought from there to Spain by a priest named Camelli, after whom it was named by Linneus.

AN ALMOND GROWING FROM A PEACH.—The *Rural Press* notes the case of an almond pushing

out from among the branches of a fruiting peach tree. A correspondent refuses to believe in such bud variation, but the editor properly reminds him that it is too late in horticultural experience to deny the existence of sports. Certainly the cases where the nectarine has pushed out from peach branches have been too well attested to admit of doubt. It originated in that way.

LOCAL NAMES OF PLANTS.—If any of our readers know of any common names of plants which have not come into general use, or may not be generally known, Dr. W. R. Gerard, 9 Waverly Place, New York, would like to have them. He is making this department of popular history a special study.

CAMBRIDGE BOTANIC GARDEN.—John A. Lowell has left \$20,000, on condition that it be called the "Lowell Botanic Garden."

SCRAPS AND QUERIES.

AUTUMN FLOWERS OF THE BERKSHIRE HILLS.

An English lady, after a trip in late autumn through this beautiful district of Massachusetts, writes: "I have just returned from a most delightful trip (principally by carriage and horses) through the Berkshire Hills. The beauty of the country reminded us constantly of England, and the wild asters by the roadside, in such a wonderful variety of color, delighted us. It seems to me that large beds of them—in public parks, etc., in the autumn—would be very attractive. I am in some perplexity as to whether a profusion of straight-stemmed plants, covered with blue flowers, are gentians or penstemons. If gentians, they do not much resemble their Carolina cousins, and are certainly far more lovely. I found them between Pittsfield and Lenox, growing on the hillsides, while our gentians have the deep shade of swamp land."

WHITE CEDAR.—"F," Vineland, New Jersey, writes: "In the East where I came from, the *Arborvitæ* is known as white cedar; but here I find a very different wood called white cedar. What is the proper one, and how does this confusion arise?"

[The "confusion arises" from the mere use of common names, which, unlike botanical names, originate with people who are not recognized as authority in naming plants. Anyone has the right to give a common name to a plant, and no one can decide which is the "proper one."]

There may be a score of different white cedars for aught we know. In Oregon the Lawson cypress is "white cedar." In California, *Libocedrus decurrens* is "white cedar." In New Jersey, *Cupressus thuyoides* is "white cedar," and "white cedar" in New England is *Thuja occidentalis*. As there is no authority to decide your question, you will have to choose one for yourself.—Ed. G. M.]

EARLY WEEPING WILLOWS IN AMERICA.—W. Kite, Germantown, says: "I see in thy MONTHLY some notices of willow trees. If it will be of interest I can tell of one.

"In the yards back of the old mansions on the north side of Chestnut street, grew many fine old trees. One of them was called Franklin's willow—a stately tree of say eighteen inches girth, (diameter?—Ed.)—sixty-five years ago when I used to see it daily. I had it from my grandparents that Franklin *did* plant it. The usual story of the osier basket and the green twig was attached to the history of this tree. It was as handsome a weeping willow as one often sees."

TWIN APPLE.—James H. Cook, Strathroy, Ontario, sends a very pretty specimen of a twin apple. Such cases sometimes occur. The two original stems are less than one-fourth of an inch apart. From this upwards there is a complete union for about three-fourths the distance to the apex, where the apple again separates to two distinct ones, each having its separate calyx and crown. It shows that in some very early stage the two apples were quite distinct, and united later. But as there is no trace of skin in the joined portion, we may learn this further fact, either that skin is not formed until there is a contact with the atmosphere, or else it is absorbed and changed into ordinary cell tissue after being formed. In the *Wistaria* bark—that is skin—is often found in the stem after the wood has been cut across, it having come about by the over-growing of the irregular outline of the wood, which does not grow in regular circles. The bark is not absorbed in these cases, so we are brought down to the probability that these twins, originally distinct, formed their union before they had any skin properly so-called.

BRACTS AND LEAVES.—In a recent number we gave, in a reference to *Antigonon*, some idea as to how large leafy calyxes are seen to represent the leaves they really are. This change from leaves to floral parts is more readily seen in the

case of plants belonging to the Arum family, of which the common Richardia, or Calla lily, is a mass of leaves coiled up so that all trace of the



ANTHURIUM SCHERZERIANUM MAXIMUM.

striking example. In that case the usual white original leaf stalks of each leaf is nearly lost. spathe often is half as green as in a real leaf, In the plant here illustrated the spathe is scarlet

instead of white, and the real flowers are the little angular figures on the worm-like spadix. The common *Anthurium Scherzerianum* is now

well known. This one of Mr. Wm. Bull's introductions is double the size of that very popular species.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—NO. 30.

BY JACQUES.

The following scraps for the *GARDENER'S MONTHLY* were found on a table by the death-bed of Mr. John Jay Smith, after his decease. It is a remarkable illustration of how the love of horticulture entered even into his dying thoughts:

Goldsmith.—Who does not like Goldsmith and his writings does not enjoy one of the most genial and pleasant authors of the English language. The series of "English men of letters," small as they are, give to the present generation an opportunity of enjoying the characteristics and peculiarities of the persons who pleased the leisure hours of our grandfathers, while they taught them what literature is. The life of Dr. Johnson, by Leslie Stevens, as already remarked, is one of the most agreeable and informing books in the language; Goldsmith's life by William Mack, the novelist, fairly comes within the list for high praise. Impecunious, careless, Goldsmith was; he adds another to those so frail, so seemingly inapt, who are the instruments through which providence works its will upon the world. What a large army they make coming down to our own time. What an anomaly was Poe; his career has now been the topic of many writers who agree as to his ability, but do not save his habits from severe animadversion; how curious that his first biographer, Griswold, should owe his name being saved from oblivion by this one act of unworthy vituperation. Very few can have perused Goldsmith's life of Beau Nash, but it is worth being overhauled. He says what was eminently true of the ladies of those days and their want of education: "But were we to give laws to a nursery, we should make them childish laws;" the women of that day were little more than infants in men-

tal acquirements. "Followed your prescription? No," says the Beau, whose intellectual capacity is not magnified. "Egad, if I had, I would have broken my neck, for I flung it out of a two pair of stairs window." The work contains some excellent warnings against the vice of gambling.

The bad practice of pulling flowers by children and even grown people, who ought to know better, continues. Let out a few city youthful tramps into a new park and the chances are that all the butter cups in a given space will be gathered and almost instantly withered, leaving nothing for the next comers, and so with other things. The park planter will tell you that ivies and all running vines are no sooner planted than they are pulled up and carried home. A lady was arrested the other day with her apron laden with new ivies, and by good luck only, escaped a week in jail. This tendency to theft can be partially corrected by careful teaching in the public schools. The police of public gardens would be greatly more useful if they were taught the difference between weeds and flowers.

Great attention is now very properly paid to the cultivation of the important cinchona, or quinine bark. New specimens have been introduced into Madras by the government, obtained in South America at a distance of three hundred miles from the coast; the Santa Fe variety yields, by analysis, ten per cent. of pure sulphate of quinine. Jamaica, too, is growing very valuable kinds.

Improvements in agricultural machinery feed a hundred men with greater ease than at one time a man could feed himself alone.—*Scientifico American.*

The enemy of the vine Phylloxera is declared to be mightier than a German army, for the latter, once satisfied, goes home, but the former stays forever. Creatures, unconscious of what they do, terrify whole nations and give the lie to the arrogance of man.

The Rose.—The passage "Mary Ann" would seem from Spencer, is this :

"Eternal God, in his almighty power
To make ensample of his heavenly grace,
In Paradise whylome did plant this floure;
Whence he it fetched out of her native place,
And did in stocke of earthly flesh enbrace.
That mortal man his glory should admyre
In gentle ladies' breste, and hounteous race
Of womankind, in fayrest floure doth spyre,
And beareth fruit of honor and all chaste desyre."

EDITORIAL NOTES.

OUR CORRESPONDENTS. [A friend in Indiana, pleasantly writes :

"I was very much pleased with Mr. Harding's 'Under the Hawthorn,' which in this connection was doubly interesting to me. But the MONTHLY has such a splendid corps of contributors that every page is replete with information for all classes of readers, and I always think after reading each number, what a treat you must have, to be in correspondence with such entertaining and instructive gentlemen and ladies from all parts of the country, and most likely entire strangers, personally, to you."

Pleasant it is, and yet it has its dark side. It is unfortunately the case that there are but twenty-four hours in one day, and of these even six or seven must go for sleep. Hence, the editor's correspondence has to be very one-sided. Fortunately the great majority are tender hearted and kind, and write him dozens of letters to his one in reply. They know it is easier for a hundred persons to write to one than for one to write to a hundred. Yet the editor often wishes he could show his appreciation of his correspondents better than he does.

THE PHYLLOXERA IN FRANCE.—By the kindness of Mr. Charles Joly, we have received the report of M. Tisseraud, on the efforts made to conquer this foe to the vineyard during the year ending 1880. It is very pleasant to learn from M. Tisseraud that "the Phylloxera, like the vine mildew, is in a fair way to be conquered by science." It appears the insect can certainly be destroyed, wherever the grapes are in a situation to have the roots submerged during the winter season, and some useful insecticides have been discovered. The best preventative is the roots of American species.

HORTICULTURE.—There seems to be a misapprehension in the minds of even intelligent persons, as to the use of the word "horticulture." In most cases they mean pomology. Horticul-

ture has to do with fruit culture; but then, so has agriculture. Whether it should be treated from the agricultural or the horticultural standpoint, depends on its special treatment. As a general thing, however, our Professors of horticulture are really agriculturists.

LAWS AGAINST WEEDS.—A correspondent from Berlin, Conn., writes :

"I have been querying of late what course our law makers will take when next they meet, in regard to the law about carrots and Canada thistles. No attention is paid to the present law by the majority of the people, and it does not beget respect for law to have plain, specific directions remain a dead letter on the statute book."

We do not know what more anyone could expect. If our correspondent will examine the back numbers of the GARDENER'S MONTHLY, he will find that we have always opposed these enactments as silly in the extreme.

DIAMOND TUBEROSE.—After our letter-press was struck off for last month, we received a brief note from Nanz & Neuner not to make any note of it. It was of course too late. After this the advertisement came to the publisher, as the reader may have noted, (page 14, Dec. No.) withdrawing offers to sell it. Since then we have had notes from Peter Henderson, V. H. Hallock, Son & Thorpe, to the effect that a tuberose under this name was offered to them, and found to be in no way different from the Pearl, and suggesting that Nanz & Neuner had been victimized. Whether Nanz & Neuner had this suspicion when making the advertisement above referred to, we do not at this moment know. For fear there may be something wrong we think it due to our readers, as this number is now going to press, to make this cautionary signal, as the weather men would say.

LAW OF BRANCHES OVERHANGING NEIGHBORS.—The Philadelphia *Public Ledger* says :

Two persons own land separated by a line fence, which is common property between the two parties. One has an apple tree on his side of the fence, whose limbs overhang the fence on the side of the other. Apples fall on either side. The question often asked is, Do the apples that fall on one's land belong to one or the other, or to both? This subject has been several times discussed, with some contradictory decisions and judgments, but the rules are now pretty well established. If the stem or trunk of the tree grows so close to the line that parts of its actual body extend into each, neither owner can cut it down without the consent of the other, and the fruit is to be equitably divided. If the stem of the tree

stands wholly within the boundary line of one owner he owns the whole tree with its products, although the roots and branches extend into the property of the other. There was an old rule of law that the latter might claim from the yield of the tree as much as would be an offset for the nourishment it derived from his estate, but this is now obsolete. The law gives the land owner on whose soil the tree stands the right to cut it down at his pleasure, and to pluck all the fruit from it while it stands. In New York State the courts have decided that trespass for assault and battery would lie by the owner of the tree against the owner of the land over which its branches extended if he prevented the owner of the tree, by personal violence, from reaching over and picking the fruit growing upon these branches while standing on the fence dividing the lands. The owner of the land over which the branches extend may lop the branches close to his line. He may also dig down and cut the roots square with his line, if he so elects. In plain terms, if no portion of the trunk is within his line he may refuse all trespass of the tree on his premises, either above the ground or below it. But if he gives the tree license either to extend its roots under his soil or to hang its branches over his premises he does not thereby gain any right to its fruit. He cannot pick it for himself nor interfere with the picking by the owner, as long as the latter remains in the tree or on the fence which divides the property. This right to the fruit does not, however, permit the other owner to come upon the soil on the other side of the line to gather the fruit, and all the fruit which falls without violence to the ground on that side may thus become the property of its owner.

ARECA BAURI.—*Seaforthia robusta*, is a synonym of *Areca Bauri*, as no doubt most persons who read the note at p. 380, last month, understood, though the accidental omission of the usual marks () of parenthesis, made it, perhaps, obscure to some.

ANCIENT PLOUGHING.—The annexed illustration of an ancient British plough and ploughman, is



from a recent lecture by Mr. C. C. Babbington, as given in *The London Gardener's Chronicle*.

SCHOLARLY WRITING.—Sometime since we noted the request of a correspondent to "excuse his poor writing, as he had not the benefit of a scho-

lastic education." We copied a piece from a school book by Comstock, and hoped our correspondent would continue to write somewhat different from such an example of the scholastic. A contemporary copies what we said, and gives the following from another school book, by a Professor Harris, but the title of the book is not given:

"The reality pushes out the potentiality. Or there may be a reality whose actuality and potentiality exclude each other. Or, when all potentialities are real, it is an immortal being. Or, when one potentiality is real all its potentialities are realized in itself."

SOUTHERN NURSERIES.—Nothing gives us more pleasure than to see or hear of the increase or prosperity of first-class Southern nurseries, for there is no part of the Union which has so many facilities for the best specimens of gardening as the Southern States. There are already quite a number of excellent fruit nurseries, and some, especially that of Mr. Berckmans, of Augusta, have quite a high reputation for general nursery supplies. We hear from a friend who has recently visited the Rosebank Nurseries near Nashville, that these also are taking a high stand in this superior line. As they are the oldest nurseries in the South it is quite a pleasure to know that they are also up among the leaders in the new order of things.

T. R. TRUMPEY.—Among the many changes so frequent in gardening and nursery establishments it is pleasant to note the fact of Mr. T. R. Trumpey having just passed his twenty-fifth year as propagator to the Messrs. Parsons, of Flushing. A quarter of a century with one firm is truly remarkable. Of the many thousands of rare trees now giving pleasure to numbers over the length and breadth of the land, how much of this pleasure is due to Mr. Trumpey's labors! It may be that he is not yet rich in this world's goods, (how that may be we do not know) but he must at least be rich in the satisfaction he must feel when he thinks of these things.

JAMES MARKEY, THE CELEBRATED POTTER.—On the evening of November 15th, James Markey, who has gained a national reputation as an expert greenhouse workman, dropped dead of heart disease, near his residence on Jersey City Heights. Though only thirty-four years of age, he had been employed in the greenhouses of Peter Henderson for nearly twenty-three years—having begun at the early age of eleven years. In all operations in the greenhouse Mr. Hen-

derson has always claimed he had no peer for rapidity and neatness. In the operation of potting he daily did the work of two average men, and was paid accordingly.

It will be remembered that some years ago when Mr. Henderson asserted in the columns of the MONTHLY that James Markey potted 7,500 plants in ten hours, several of our readers questioned the fact. Long since then Mr. Markey had far surpassed even that extraordinary record, and had repeatedly potted 10,000 in one day of ten hours; and on one special occasion, in April of this year, potted 11,500 rooted cuttings of verbenas in 2½ inch pots; a feat probably never equalled or even approached. Besides being an extraordinary workman, few men of his years were possessed of such varied and comprehensive knowledge of greenhouse work. Mr. Markey was a native of county Meath, Ireland, but came to this country at an early age, and, except two years which he served in the war of the Rebellion, had been from first to last in the employment of Mr. Henderson. He was modest and unassuming to a fault; a generous-hearted, open-handed fellow, and enjoyed the respect of his employer and fellow-workmen to an extent that few men ever attain.

A. S. FULLER.—This well-known entomologist and writer on gardening has taken to the study of mineralogy. At least, he was at last accounts directing some silver mining operations in New Mexico.

M. J. DONNELLY.—This well-known Rochester nurseryman we find claimed by the *Montreal Post* as being formerly "one of them," before Jonathan absorbed him. He does not, however, forget his old friends, as he went back there last September and astonished them with an exhibit of one hundred varieties of apples, and forty of pears.

THE BOTANICAL INDEX.—The publication of this valuable quarterly has been temporarily suspended, the editor, Mr. Case, having had to engage in the meantime in some pursuits which would interfere with his work on it. There are numerous admirers of this unpretending effort who will be glad to welcome its reappearance.

THE FLOWERS AND FERNS OF THE UNITED STATES.—When this work was commenced it was regarded as but an experiment, and it was issued as an experiment by Messrs. Prang, who promised to issue one series of 196 chapters only. So far

as popular support went, it was a great success; but they found, as being in the business of lithographic printing, it was not wise for them to go into a publishing business. Over 5,000 subscribers were found for the work, a number perhaps unparalleled for a mere scientific work.

Mr. Charles Robson, who purchased the work, concluded also to try the series plan, before issuing it as a regular thing. In this way a second successful series was issued. It became evident that the American public would permanently sustain a work of this character, and arrangements were in progress to commence a regular monthly issue on this first of January.

The drawings were all prepared, and the editor has over fifty chapters ready, so as to be sure to always have enough ahead to guard against sickness or accidents interfering with the regular appearance of the work, when Mr. Robson died suddenly, of cholera, in September, leaving no arrangements whatever for the continuation of his business.

Up to this time the administrator has not been able to make a satisfactory sale of the right to "Flowers and Ferns," and there is therefore no one as yet to continue the publication of the work, as was intended. As soon as this matter shall be settled and another publisher found, the author hopes to continue in a permanent form a work which he is pleased to know has given pleasure to so many thousands of men and women all over the world.

PROCEEDINGS OF THE GEORGIA STATE HORTICULTURAL SOCIETY.—President P. J. Berckmans. We note that the Nickajack apple is losing favor in Georgia. In regard to peaches, the Alexander seems the favorite among the societies. Numbers of new-fangled things, with high recommendations, were voted worthless, or nearly so; and the famous old Crawford's early, and Crawford's late, still found to be at the top of the favorable list. The society seems to confine itself entirely to fruit culture, and to be doing excellent work in that line.

AMERICAN NEWSPAPER ANNUAL, for 1881, by N. W. Ayer & Son, Newspaper Agents, Philadelphia. There is nothing more necessary to a successful business than judicious advertising. Fortunes are made and fortunes are lost by advertising. To advertise, and to know just how to advertise, is the mainspring of success. If a paper has a hundred thousand readers, and you have that to sell which a hundred thousand

readers want, that paper is just what you need; but, even then, you must be sure that the advertisements are read by the "readers," or your money will be thrown away. It may be that what you have to sell will not be needed by one in a thousand, in that case a paper of ten thousand readers will be just as well as one of a hundred thousand, and perhaps better. These, and points "too numerous to mention," as the hand-bills say, enter into the success of advertising.

It seems to us that the great merit of this Annual is, that it gives attention to these matters, more than similar works have done in the past. It gives some account of the business and surroundings of the leading towns in the country, among the people of which the papers circulate, and this is a great help to the advertiser, in deciding whether such "readers" are likely to be any use to him. Probably too much importance is still given to mere "circulation;" a set of figures supposed to represent this standing after each paper's name. Of course, some idea of circulation must enter into an idea of advertising, but the great trouble is to get at the accurate figures and the character of that circulation. We know, for instance, of a paper which has less than two thousand which is given here as eight thousand; such errors are very annoying to other papers which tell the truth, and exasperate them against "Annuals" of this kind. But, granting that some idea is necessary, it is difficult to see how the editors of these books are to do any better, where they have so many to guess at; and all we can say is that it only illustrates an every-day fact, that the innocent must continue to suffer for the guilty. We cannot, on account of this difficulty, avoid the conclusion that, for all, advertisers cannot afford to do without a work like this.

A PRACTICAL TREATISE ON TREE CULTURE IN SOUTH AUSTRALIA.—By J. G. Brown. Published by the Forest Board of South Australia.

South Australia sees, as other portions of the earth see, the absolute necessity of looking forward to its forest interest. It has not yet been shown that a forest planted to-day will prove profitable to the owner within a reasonable time, neither is it always made manifest that one who plants a forest is investing safely for his children. Yet it is a national interest that there should be forests. Thousands of interests depend on timber, and it therefore becomes the duty of governments to encourage that planting

which it will not pay an individual to do for himself. Our American State governments have recognized this principle in various ways, though their manner of doing it has often been puerile and sometimes ridiculous. In Pennsylvania, for instance, one dollar is deducted from the road tax of the person who plants four trees along the road-side! In other words the whole community is to wallow in slush, and wade through a quagmire to pay a dollar for every four trees, which, after all the planter may cut down for bean poles a few years afterwards, for all the law, as it is written, prevents him. The only good of such a simple law as this is that it virtually acknowledges the duty of a State to enact protective laws in the fostering of forestry.

South Australia, as we find by Mr. Brown's work, acknowledges its duty in a more sensible manner. It first looks about to see where forests may be needed. It does not like the Pennsylvania law, pay a man twenty-five dollars for a hundred trees planted in front, perhaps, of a huge forest which is so inaccessible that it would not pay for firewood; but it decides first on what part of the colony shall be a "Forest district." In such district, and on his own actually-occupied land he must plant five acres, the kinds prescribed by the government forester as fit for that district. The tract must be securely fenced from cattle. The trees are to be set in accordance with good rules provided, and at the end of five years, "if the trees are in a vigorous, healthy condition," and "at least ten feet high," he is entitled to two pounds sterling (\$10.00) for every acre so planted. There are some other minor details, but this is the main feature of this intelligently practical law.

This work of Mr. Brown is intended to teach farmers how to plant and care for the forests, and all they are likely to want to know in order to make their plantings successful. It seems an admirable plan all through.

PLANTS OF INDIANA.—Catalogue by the editors of the *Botanical Gazette* and Charles Barnes, Lafayette, Indiana. Local catalogues are of great value. They not only aid the collector, but they serve very materially those who are studying the geography of plants; for we are not only able to judge of distributions as they are now, but by comparing them with lists that have been made in the past, we get an idea of the changes of location that are continually going on. It is chiefly through local lists like these

that we have learned of late years that plants are almost as restless as man. They are continually on the move, and the very term "indigenous" has to be limited to modern times.

According to this list there are now known as indigenous to Indiana 1,432 species and 577 genera. Among some recently suggested changes here adopted, the critical botanist will notice his old friend the "Pearl Everlasting" *Gnaphalium*, or *Antennaria margaritacea*, has been removed by Bentham and Hooker to *Anaphalis*. It is now *Anaphalis margaritacea*. This genus was made many years ago by De Candolle to cover a dozen or more of old time *Gnaphalium*s of the East Indies, and this change gives America a representative in this Indian family.

INDIAN CORN.—An essay by Prof. Beal. This is another of those little pieces of excellent work which Prof. Beal is continually performing. One might read a heavy volume on corn, and not learn more than is taught here. A point which interested us very much in this paper is that though the effects of crossing will often be shown in the grain of the same season, it is not always so. Sometimes the characteristics of the male parent do not appear in the seed till the succeeding generation. This is a very important fact which Prof. Beal should have the full credit of discovering. Even the fate of a lawsuit might hang on such knowledge.

GENERAL INDEX TO THE NINE REPORTS ON THE INSECTS OF MISSOURI.—By Charles V. Riley. Published by the United States Entomological Commission.

The great want of the age is the indexing of the facts brought to light of late years. Societies and public bodies year after year give to the public "original papers," which are in no sense new, but a sheer waste of time and money to publish; and chiefly for want of good indexes, few know what is new. The government can do no more useful work than issue papers like these.

A GLIMPSE AT MICHIGAN HORTICULTURE.—By Charles W. Garfield, Secretary of the State Horticultural Society. This should have been entitled *Michigan Pomology*, for it deals with this single branch of horticulture. It shows a wonderful advance in fruit culture in the State, and how well the State is adapted to fruit growing. Mr. Garfield concludes his able remarks by observing:

"Michigan has a motto upon her coat of

arms, *Si quæris peninsula amenam circumspice*—If you wish to see a beautiful peninsula, look about you. That is no flaming advertisement of exaggerated proportions, but is a simple introduction to those who enter our borders, the apparently complimentary language of which is found by every visitor to be a truthful statement.

"The old derisive songs that told of ague, marshes, rattlesnakes and wolverines as the natural products of Michigan, are not sung any more; and none visit the peninsular State who do not go away with pleasant accounts of her climate, soil, productions and people."

THE HESSIAN FLY.—By Dr. A. S. Packard, Jr.; being Bulletin No. 4, United States Entomological Commission. Published by the Department of the Interior.

This is another of the very useful treatises published by the United States Government for which the people will thank their representatives.

No. 5 of the same series is by Dr. Cyrus Thomas, and treats of the chinch-bug.

THE WILD GARDEN; or, our groves and gardens made beautiful by the naturalization of hardy exotic plants; being one way onward from the dark ages of gardening, with suggestions for the regeneration of the bare borders of the London parks. By Wm. Robinson, London, and New York, Scribner & Welford. 1881.

This heavy title reminds of the revival of learning, indeed, when the mighty warriors in the cause of truth, issued their "Sandy foundations shaken," or "Satan attacked by his own sword," or some other equally valiant book which carried defiance on the very title page. Yet we sympathize heartily with the object of the work, and hope it will be the means of not only inducing a greater love of hardy exotics, but also for the many pretty native plants in which British woods abound.

Mr. Robinson's books are always as beautiful as they are useful, and this, to say the least, is no way behind any of its predecessors. We hope it will have a large sale, both in this country as well as in the old world, aiding, as we are sure it must, a genuine love for flowers. In perusing its beautiful and instructive pages, the only thing we are sorry for is to find that Mr. Robinson is not yet convinced that his well-meant efforts to avoid the use of hard Latin words of plants are only leading to unutterable confusion. We had hoped it would have stopped with the *Garden*, and not have found a place in a work of such

permanent value as this. There is no doubt that the work will lose very much of its value in this country where the local English names, or the new ones coined, will not be understood. Not half the readers here will have any idea what plants are referred to. If one meets with a botanical name, and does not know what the plant is, a reference to some botanical work will explain it; but there is no work that will tell him anything about plants with these funny names. We venture to say that if a list of them were given even to a first class English nursery, the order would be returned with the remark that they could not be supplied, simply because they are not known by those names. Though we have endeavored to keep the track of Mr. Robinson's new names as they appeared in the *Garden*, we find a large number here that we know nothing about, and in consequence all that he says about the plants might as well have been written in Chinese. We suppose "Cheddar pink" is some sort of a *Dianthus*, and have something of an idea what a "wind gentian," "Bavarian gentian," or "Caucasian comfrey" may be; among the many of these species there is some sort of chance to understand how they look; but when it comes to "Barren wort," "Mug wort," "Handsome evergreen alkanet," "Pretty little Rosy Bindweed," and so on, even "can imagination paint" becomes a question.

Moreover, it does not seem to us that the object sought—the introduction of easy names over hard Latin ones, is really accomplished. "Geneva Bugle dwarf Boragewort" does not seem easier to say than if we use its full botanical name—whatever that may be. "Goat's beard spiræa" is surely no better than *Arunceus*; and as for "Bears-breeches," we fancy *Acanthus*, classical though it be, will be preferred to the plain English.

It is some sign, however, of a faltering in this confusing work to find Mr. Robinson himself evidently disgusted with it before he gets through. When he comes to give lists of flowers adapted to his wild garden, he uses nothing but botanical names. That he may go on under this conviction of wrong-doing will be the wish of the many admirers of his useful labors.

THE NEW BOTANY.—A lecture on the best methods of teaching. By Dr. W. J. Beal, Professor of Botany in the Agricultural College, Lansing, Mich.

Neither botany nor horticulture is what it was

a half century ago. True gardening in these days embraces a knowledge of flowers to an extent that makes the gardener really a botanist, while botany is a great deal more than a mere classification of a lot of dried sticks. In the new order of things botany deals with plant-life, just as gardening does. Few have done so much, probably no one has done more to make botany popular than Professor Beal. In this lecture he tells how he does it. No better service could be rendered to botanists and gardeners than to have this lecture in the hands of every teacher. We hope it will have a wide circulation.

SCRAPS AND QUERIES.

VARIOUS QUESTIONS.—"G. McC.," Boulder, Colorado, sends us various questions, written on both sides of a sheet of paper, which prevents us from classifying them, as it is generally best to do; so we have to find a place for all of them under the "literary" head. It is never wise to write on more than one side of a sheet when sending matter to the press. He says:

"Will you please give me information upon the following points in the *GARDENER'S MONTHLY*: 1. What work on landscape gardening is best adapted to small rural places? Can you recommend Scott's?

"2. Give the names and addresses of the secretaries of the State Horticultural Societies of California and Kansas, also Utah, if there are such.

"3. It is said that fruit of first-class flavor cannot be grown on land on which water is allowed to stand, and hence such fruit cannot be grown in localities which require irrigating. Furthermore, it is said that California Oranges and other fruits, though often of monstrous size, are deficient in flavor, and cannot compete in the eastern markets with those grown in Florida or Louisiana. Is this true?

"4. An esteemed horticultural friend of mine takes strong ground against horticultural societies and journals. He says, 'When an inventor discovers any thing of general value he at once secures to himself the advantages by letters patent, instead of turning it out to public use. Why, then, should a pomologist be expected to be so generous as to give away the results of long and costly experiments! As to horticultural papers, it is generally the novice that writes for them. The experienced and successful man

holds his tongue, and endeavors to profit by his discoveries.' This reasoning seems cogent. What says the *GARDENER'S MONTHLY* about it?"

[For first-class work, on large or small places, there is no work like Scott's. Every one interested in genuine horticultural taste should have this work in his library. For smaller efforts, such for instance as the making of a farm neat and cheerful in its surroundings, the work of Elliott, published by Dewey, of Rochester, gives valuable assistance.

2. There are either horticultural or pomological societies in all the States named. The officers are usually changed about this time every year; but if you will write to Mr. John Reading, Salt Lake City, Utah; Mr. Charles H. Shinn, Niles, California, and J. K. Hudson, Topeka, Kansas, they will no doubt with pleasure give the names of those in office.

3. Report is correct; but why should water be allowed to "stand?" It seems to us no more difficult to under drain land that is to be irrigated than land which is watered by the rain. The writer of this paragraph has had three separate occasions of being personally well acquainted

with the soil about Boulder city, and is quite sure there is no more reason why as good fruit cannot be grown there as in any part of the United States. Indeed he looks on irrigation as a better agent, in successful agricultural or horticultural operations, than the agency of nature in her fickle rule of rain, and has seen nothing to take back since he announced these views in an address in Greely, in 1871.

4. Your friend is perfectly right, if all the knowledge he expects to gain is only such as inventors can patent, or such as any man may be largely interested in keeping to himself. We quite agree that no man should be expected to be so generous as to give away the results of long and costly experiments.

We do not pretend to give, for two dollars a year, this costly and valuable information. But though our readers may not get a thousand dollars' worth of information for two dollars, it is generally believed that they do get two dollars worth; and we have little doubt, if the esteemed friend did not want quite so much for the money, he would find two dollars spent on the *GARDENER'S MONTHLY* worth at least that sum.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

HORTICULTURAL EXHIBITIONS.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

On page 320 of the *GARDENER'S MONTHLY*, for October, you ask why do not exhibitors exhibit, and say that those engaged in getting up exhibitions have generally to get on their knees and beg of exhibitors to send something to the fair, etc. Now, I had an idea that editors were well posted persons on all subjects, and that the editor of the *GARDENER'S MONTHLY* was the best informed man among them all. But I regret to see that I have been mistaken.

Why exhibitors do not exhibit is simply because the premiums are not enough to cover the expenses. Allow me to give yourself and readers some incidents of personal experience. In September, 1876, at the Pennsylvania Horti-

cultural Society's autumnal fair, I exhibited one hundred varieties of succulents, consisting of *Echeverias*, *Sempervivums* and *Cotyledons*—many of them were new plants shown for the first time, and were growing in four, six and eight-inch pots. The cost of getting them to and from the hall, cleaning the pots and labeling the plants, was as follows:

Two men one day each (at \$1.50 per day), \$3.00; one load furniture car to hall, \$1.00; one load furniture car from hall, \$1.00; one hundred large labels for plants, \$1.00; one man one-half day returning with plants, etc., 75 cents; making a total expense of \$6.75. This exhibit covered about one hundred and fifty square feet of table room, and, although it was the centre of attraction, the committee for awarding prizes gave a special premium of only \$2.00. You will readily see that I was likely to be \$4.75 out of pocket. But be it said, to the credit of the secretary of the

society, that he was so ashamed of the action of the committee that he made up the deficiency out of his own private purse; but exhibitors do not always come out so well, and consequently will not bring their best productions to the exhibition.

Last year, at the State Fair of the Pennsylvania Agricultural Society, I exhibited fifty distinct varieties of Coleuses, grown in eight-inch flower pots, and, after sending a man to water them every other day during the fair, which lasted two weeks, I received the munificent sum of \$3.00 for my prize—about one-fourth the price of the production of the specimens, and certainly not half the price paid for the plants, as many of them were new varieties.

Again, look at the Chester County's Agricultural Society premium list of the State Fair, held at West Chester in September. For greenhouse plants (strong growing collections), first prize, \$5.00; second, \$3.00; while for the Bicycle race the first prize was \$20.00; second, \$10.00. For designs of cut flowers for table decoration the first prize was \$2.00; the second, \$1.00; while for the best carriage afghan of zephyr work, which any one could roll up and carry under his arm, a prize of \$3.00 was given for the best, and \$2.00 for the next best.

Now this kind of treatment is not very encouraging for horticulturists to bring their best productions to the various exhibitions, and, as long as the prizes will not cover the expenses, exhibitors will be scarce.

It is all very well for those who have the getting up of exhibitions in charge to tell exhibitors that it acts as a good, free advertisement, thus bringing their names more fully before the public, etc., etc.; but the most of exhibitors—at least all of the commercial ones—are willing to pay for printer's ink for that purpose, and generally do so.

EDITORIAL NOTES.

PENNSYLVANIA STATE HORTICULTURAL SOCIETY.—The annual meeting will be held this year in Harrisburg, on Wednesday and Thursday, 18th and 19th of January, in the rooms of the State Board of Agriculture. The usual programme will be ready shortly.

STATE HORTICULTURAL SOCIETIES.—Most of these have their annual meetings in January; and after a while we shall have requests for

"notices," to appear in our January number. It does not seem to occur to all of our readers that the preparation of a monthly magazine begins a month before the date of its appearance. At the time of this writing we have no notice at hand of any one of those meetings. We can only say that in former times, when devoted to fruit growing for market chiefly, they were always interesting, but since the most of them have changed from pomological to horticultural societies, and now take in every branch of gardening, they appeal to every person of intelligent culture, and are more than ever worthy of the support of the best people in the districts where the meetings are held.

HORTICULTURAL EXHIBITIONS.—According to a recent paper by M. Joly, the first horticultural exhibition ever held in France, was by order of Francois de Neufchateau, Minister of the Interior. It was held in 1798, and brought out 110 exhibits. The Horticultural Society of Paris was founded in 1827; held its first exhibition in the orangery of the Louvre, and of the Luxemburg Palace. Vilmorin had much to do with their success. The grand international expositions of 1855, 1867 and 1878, in Paris, did a great deal to foster and encourage horticulture.

In referring to the exhibitions of London, M. Joly shows how much of the success is due to the enterprise of its leading nurserymen; and names especially in this connection Veitch, Bull, Sutton, and Carter. He claims that France should be, by virtue of its climate, the garden of Europe; but inclines to the belief, that the princely love of flowers is not as great as in England. He believes that the French horticultural societies have a mission to fulfil in doing more to reach the floral eminence of England.

ESSAYS AT HORTICULTURAL MEETINGS.—The Germantown Horticultural Society had essayists who were appointed at one meeting to prepare a paper for the next. This worked well for a little while, but it was found in time that all the work fell on a few. Now a person is appointed to prepare a subject for discussion. The subject is announced at one meeting, to be discussed at the next. In this way the members come prepared either to ask more questions, or to communicate what they may know. A recent discussion on rose culture was especially interesting, from the many good points thrown in by persons who usually say not a word.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

FEBRUARY, 1882.

Number 278.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It is often a matter for surprise that the English should grow what they call "American plants" better than we can. These plants form the greatest attraction of their grounds. Why should not America grow American plants? Now, what they call American plants are only those chiefly which belong to the Ericaceous family. These are Rhododendrons, Azaleas, Kalmias, Andromedas and such well-known beautiful flowering shrubs in which America abounds. But it is not generally known here that they could not grow them there if it were not for the garden art and garden skill at the back of their culture. We could grow them just as well here if we took pains to understand their wants. All these plants have delicate, hair-like roots, and require a cool, aerated soil to do well in. They hate water above all things, and yet desire a soil in which moist air abounds. In their native places in our country they are often found growing, apparently, in swamps; but when we examine carefully none of the roots, or at most only the tap roots are down in the water; all the hair-like roots are in the moss which abounds above the water in the swamp, or in the cool peaty matter which is above the water in those places. There is moisture in this material.

It can be often squeezed out as from a wet sponge; but there is air, too, any quantity of it, and it is this combination which these plants desire. Not even England, where the atmospheric condition is so favorable from the combination of air and moisture, would the plants do well unless the same conditions were supplied to the ground. The good gardener would not think of planting these shrubs in the ordinary earth. Soil is usually provided for the purpose, and tons and tons of peat often brought from long distances in order to grow them well.

It is not necessary that we should get peat for them. Anything that will tend to lighten the soil and permit the free passage of air and water through it is sufficient. Broken bricks, stones, old boots and shoes, rotten logs—anything of this kind will do, and of course the part of the grounds the least subject to drying winds should be chosen. There is no reason why, with a little study to adapt our circumstances to the wants of these plants, we should not have as good "American plants" as they have in England.

As the season for planting is approaching, it may be as well to remind the planter that there are now thousands of beautiful trees and shrubs to choose from. At one time there was some excuse for the man who planted, over and over again, soft maples and poplars. These have still their uses, but the choosing of more variety and

beauty is one of the best marks of an educated taste. Those of our readers who have followed the excellent papers on new or rare trees and shrubs given in our columns last year, will have good guidance as to what to choose.

All of this in a general way. It may be as well to offer a few practical suggestions in the matter of detail work suited to the season.

Many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done—but with March all should be finished—taking care not to trim severely such shrubs as flower out of last year's wood, as for instance, the *Wiegela*—while such as flower from the spring growth, as the *Althæa*, *Mock Orange*, &c., are benefited by cutting back vigorously.

Those which flower from young wood, cut in severely to make new growth vigorous. *Tea*, *China*, *Bourbon* and *Noisette* roses are of this class. What are called annual flowering roses, as *Prairie Queen* and so on, require much of last year's wood to make a good show of flowers. Hence, with these, thin out weak wood and leave all the stronger.

To make handsome, shapely specimens of shrubs, cut them now into the forms you want, and keep them so by pulling out all shoots that grow stronger than the others during the summer season.

Graft trees or shrubs where changed sorts are desirable. Any lady can graft. Cleft grafting is the easiest. Split the stock, cut the scion like a wedge, insert in the split so that the bark of the stock and scion meet; tie a little bast bark around it, and cover with Trowbridge's grafting wax, and all is done: very simple when it is understood, and not hard to understand.

If flowers have been growing in the ground for many years, new soil does wonders. Rich manure makes plants grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to about every fifty square feet will be enough. If the garden earth looks grey or yellow, rotten leaves—quite rotten leaves—will improve it. If heavy, add sand. If very sandy, add salt—about half pint to fifty square feet. If very black or rich from previous year's manurings, use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

Dig garden ground only when the soil is warm

and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to powder as you tread on it, it is time to dig—not before.

If perennial plants have stood three years in one place, separate the stools, replanting one-third, and give the balance to your neighbor who has none.

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above ground.

Roll the grass well before the softness of a thaw goes away. It makes all smooth and level.

In planting trees remember our repeated advice to use the pruning knife freely.

We would again repeat a suggestion we recently made in regard to rustic summer houses. They can often be very cheaply made. In our country they should be open on all sides.

COMMUNICATIONS.

PROPAGATING YUCCAS.

BY A LADY OF CHARLESTON, S. C.

Yuccas, or as we in South Carolina call them, "Spanish Bayonets," grow wild with us. At a picnic in the woods I had left our party and was hunting wild flowers at the edge of a tide swamp when I came upon a quantity of large *Yuccas* lying across my path. Evidently they had been cut off the land to clear a path for some wood cutters, and there they lay in the hot sun in a heap.

I had the handsomest brought to Charleston, and used them on my house for Christmas decoration, where certainly they remained for several days. They were afterwards thrown into a corner of the yard. Sometime afterwards I perceived my trees were throwing out roots, and I finally planted them about the garden. They all grew but one, and are now fine specimens. As I put in the ground the great stems entirely without roots, I thought it might interest florists to know they can be propagated in that way. Planted in the shifting sand of a bluff by the sea, they prove excellent aids to preserve the bluff from being blown away by the wind, and when in bloom in large heaps, as we see them, they are very imposing, the heads of blossom so exquisitely white against the stiff dark leaves. There is a large-flowered evening primrose, *Oenothera*, (originally the seed was brought from Germany, it is said,) which covers the sands

every summer on the coast near Charleston, which has lately attracted much notice from its beauty and profusion. The flowers bloom close to the ground, and are so numerous that the sands are golden in the evening. The plant has thick reddish stems, which throw out deep stiff roots, holding firmly to the sand. The leaves are insignificant and greyish in color.

SOME NEW ROSES OF 1881.

BY JEAN SISLEY, LYONS, FRANCE.

Tea, Etoile de Lyon (Guillot), splendid yellow, large, free bloomer, strong grower.

Tea, Beauté de l'Europe (Gonod), very vigorous, like Gloire de Dijon, large, very full, dark yellow.

Ile Bourbon, Abbé Girardin (Bernaix), large, full, well shaped, delicate pink, darker centre.

Hybrid perpetual, Ulrich Brunner (Levet), issue from Paul Neyron, cherry red, large, well made.

Hybrid perpetual, Violette Bouyer (Lacharme), large, well shaped, white, shaded flesh, style of Jules Margottin.

Hybrid perpetual, Helene Paul (Lacharme), very large, globular, beautiful white, sometimes shaded pink. Style of Victor Verdier.

PUBLIC GARDENS OF ST. LOUIS.

BY CHARLES CRUCKNELL, ST. LOUIS, MO.

One of the favorite parks of St. Louis is "Lafayette," and a beautiful place it is. Thousands of people gather here, more particularly on Sunday, and are seen wandering through the shady avenues, or sitting about under the trees enjoying the beauties of nature. The park contains about thirty acres, is centrally located and of easy access by street car. Near the centre is erected a bronze statue of Benton and beneath are the words, "There is the East; there is India," from a speech of the great statesman. On the south side of the park is a statue of Washington, around which are planted very pretty beds of foliaged plants. The carpet and mosaic beds have been a chief feature of the attractions this season. No less than twenty-five thousand plants were set out, chiefly foliage plants. These are contracted for and furnished by the city florists. In addition many beds are made up of annuals, Cannas, Caladiums, grasses, roses and herbaceous plants. Nine hundred *Coleus Verschaffelti* and fifteen hundred *Coleus Setting-sun* were planted,

these being the only *Coleus* used. The last named bids fair to equal the former in general usefulness. It has stood the heat and dryness of the past season extremely well, and being of a rich golden color has imparted a glorious effect to the grounds. A variegated *Stevia* worked in well for lining the designs. "Lafayette Park" in large letters cut in the grass near the walk proved an immense attraction to young and old. Two rows of *Echevaria secunda* glauca formed the outside, and a single row of *Alternanthera spathula* in the centre completed each letter. A circular bed of more intricate design contained the Missouri coat of arms. The ground work of this appeared to be a dwarf *Pilea* about three inches high, and remained green all through the season. The bears in this bed made a good deal of amusement for the youngsters but they were perfectly tame.

Another bed cut in the shape of a large cornucopia, the mouth filled with tea roses, and the balance planted with various colored foliage plants was charmingly pretty. Of the many carpet beds planted, nearly all retained their distinctive features until the first frost of the season occurred, November 2d, thus ruthlessly destroying the floral beauties of this, the garden park of St. Louis.

BROWALLIA AS A BLUE BEDDER.

BY CHARLES E. PARNELL, QUEENS, L. I.

In reply to W. D., who asks for the name of a blue bedding plant in the January MONTHLY, page 8, I would say that I know of none better than *Browallia elata* major, (grandiflora of some catalogues). This *Browallia* is an old plant but is not as extensively known as its merits entitle it to be. It is a half-hardy annual growing about eighteen inches in height. It can be readily raised from seed. The plants should be set about ten inches apart. The flowers are produced in the greatest abundance and are both beautiful and delicate. I do not think that the blue *Lobelia* will answer W. D.'s purpose and would advise him not to try it.

MR. HUNNEWELL'S GARDEN AT WELLESLEY.

BY WM. FALCONER.

NO. II.

Rhododendrons.—There is no finer show in any other garden in the country than that afforded by the *Rhododendrons* at Wellesley in early

May. There are hundreds upon hundreds of half-hardy plants, vast bushes and little ones, tastefully arranged in beds upon the grass, under the skeleton framework of a mammoth tent. While the shrubs are in blossom, the canvas is spread over the frame, but as soon as the flowering time is over the canvas is removed and the shrubs allowed to make and ripen their new growth unshaded. Old flowers and seed vessels are picked off and lots of water given in protracted drouths. In November these half-hardy Rhododendrons, with as good balls of roots and earth as can be taken with them, are transplanted, or "heeled-in" rather, in earth beds, in large cellars and other more favorable quarters, specially constructed for them. Here they remain cool and uninfluenced by variations of temperature till April, when they are again transferred to their outdoor places, as before. Besides the spacious accommodations formerly provided for wintering half-hardy rhododendrons in, Mr. Hunnewell has just had completed a substantial structure of masonry, with an inside measurement of 66 feet long, 18½ feet wide, and 12 feet high; light and ventilation are admitted by windows on the roof and ends. This building is among the trees on a northern (I think) slope, and is provided with large doors and a good cartway leading to them, so that very large plants may be conveniently handled. An older but somewhat similar cellar-building is fitted up with double sashes and shutters as proof against severe weather, and in it is a fireplace and flue to be used in case of dampness.

In the summer time palms and other suitable plants are associated with the rhododendrons under the tent frame, the pillars and timbers of which are clad and draped in Clematises, Wistarias and other permanent vines. And surrounding this are deep banks of hardy Rhododendrons, backed for effect and shelter's sake with other shrubs and trees, and on one side with hedges. Lilies and other bulbous plants grow up among the bushes and prolong the flowering time. But outside of this particular spot, rhododendrons, old and large, are massed in groups, banks, and beds, and in great numbers too. In the case of the hardy rhododendrons, the beds containing them were deeply and well made, to begin with, and now they are heavily mulched with tree leaves every fall. These leaves are a partial protection against frost in winter, and are allowed to remain during summer, partly for nourishment, and partly as a re-

lief against drought. But Mr. Harris says he should prefer to have the rough leaves removed in spring, and a dressing of rotted leaf soil applied instead, as he would thereby not only be feeding the plants, but bringing their roots within the influence of every passing shower, in spring and summer, whereas, when the heavy mulching of undecomposed leaves remains upon the beds in spring, many a light but beneficial shower is spent upon the mulching without reaching the roots. The following hardy and half-hardy kinds of rhododendrons are recommended by Mr. Harris: Hardy,—Album elegans, bluish, changing to white; Alexander Dancer, bright rose with pale centre; Archimedes, rosy crimson; Caractacus, rich purplish crimson; Charles Dickens, dark scarlet; Delicatissimum, pale bluish; Everestianum, rosy lilac; H. H. Hunnewell, dark rich crimson; H. W. Sargent, crimson; Lord John Russell, pale rose (apt to get a little winter hurt); Mrs. John Clutton, white, very fine; Mrs. Milner, rich crimson and Purpleum elegans, fine purple. Half-hardy,—Alarm, white, edged with crimson; Auguste Van Geert, rosy purple; Brayanum, rosy scarlet; Cynthia, rosy crimson; Elfrida, rose, much spotted; Fleur de Marie, rosy crimson; James MacIntosh, rosy scarlet; J. Marshall Brooks, rich scarlet; John Waterer, dark crimson; Joseph Whitworth, dark lake; Lady Armstrong, pale rose, and Lady Eleanor Cathcart, pale rose.

Indian Azaleas are largely represented, and in addition to forming with the hardy varieties and the Rhododendrons a special show in the spring, they are in blossom in succession from Christmas till June. As they finish blooming they are introduced to warm, moist quarters, and encouraged in growth. They are then gradually inured to cooler treatment, and in the summer time plunged out of doors, in a well-sheltered yard, there to remain till the end of September or first of October, when they are removed to cool greenhouses or pits. They remain in these pits till December when a majority of the latest of them are moved into the cellars with the Rhododendrons, to stay till spring. When any of them grow out in a straggling, misshapen manner, Mr. Harris has no hesitation in pruning them hard into the old wood; this he does early in the season, and introduces them at once into heat, moisture and shade. Buds break out all over the old wood, and although an idea prevails that this first year's wood will not yield flowers, Mr. Harris tells me he succeeds in getting some

blossoms from it. Among the more recent additions, Mr. Harris recommends Empress of India, Charmer, Madam Jean Wolkoff, Oswald de Kerchove, Jean Vervain, Paul de Deschrymer, Countess of Beaufort, Princess Louise, Argus, Imbricata, Madam Marie Van Houtte, and Segismund Rucker. And he speaks highly of Prime Minister, Lady Musgrave, and one or two other varieties of Amœna, and which are an improvement on the typical form; they must become popular, as they are so easily forced.

Deciduous or hardy Azaleas are the chief furniture of a garden, by themselves, where they are grown in beds like roses. They comprise what are generally known as Ghent Azaleas, also the Japanese mollis, and its many varieties. The azalea garden is surrounded by trees and shrubs, and it is instructive to note how the azaleas turn their backs to their shade-bearing shelter, and stretch forth their branches to the light. They are not mulched with leaves, as the Rhododendrons are, but instead are top-dressed with compost. The brilliance and variety of these beautiful shrubs, when in bloom, are great, and they are so hardy too that they appeal to every amateur. Although there are many named varieties, Mr. Harris is of the opinion that mixed varieties are good enough for any purpose. Speaking of azaleas reminds me of a remark by Professor Sargent, and made to me in his garden a year or two ago: "If I were confined to one shrub, I should choose the hardy azalea."

BLUE FLOWERS FOR MASSING.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA,
CANADA.

For "W. D's.," Sandusky bed, instead of the blue Lobelia (you suggest) to accompany the Achryanthus and Centaurea would be the Ageratum John Douglas, and then the Achryanthus and Centaurea will have to have frequent stopping to keep them to one height and be effective.

A better bed can be made of his design if he will use any of the following plants that I suggest: Alternanthera, red; Leucophytum Brownii, white, and then blue Lobelia, as they grow about one height, and the two first will bear trimming.

Another, Phlox Drommondii, scarlet and white and blue Ageratum, but must be in good mass, the phlox to be pegged down to the same height and line, which will much add to the mass of color.

I can assure you that I agree with you in your

remarks about designs, letters, or otherwise in beds, not being done with neatness. I have read and travelled for information on this subject, but have always come back home with your opinion. Bedding I have studied for years as done in Europe and elsewhere.

I thank you for your kind remarks on my beds, of which I sent you photographs, which only give you an imperfect idea of what they are, as many other designs are just as correct in line and form as those sent.

NOTES FROM THE WEST.

BY IROQUOIS.

How we all admire a beautiful lawn, during summer, with a well selected collection of ornamental trees, shrubs and vines, properly trimmed and otherwise cared for, but how desolate and dreary this same lawn usually looks, for at least four months of the year, especially if not well supplied with evergreens. Now we all know that nearly or quite all the so-called evergreen trees and shrubs, not included in the class of Conifera, in this latitude (40° North), will retain their foliage but a short time after the cold and freezing weather of autumn and early winter has fairly set in; and that the true evergreen of our temperate zone must, almost exclusively, be a Conifera, which is not, as a rule, a popular or even desirable tree or shrub to plant on the lawn, with the majority of our people, whose idea of a fine tree or shrub is one that produces "lots of flowers" during spring. As a rule, the existence of the lawn during the winter is perfectly ignored, except possibly to tie up a favorite and tender rose and shrub with a big bundle of straw or some other equally unsightly object.

Now it is a well known fact that our native trees, shrubs and to a large extent our native vines are not considered worth the time and trouble of transplanting, by the majority of our people, consequently, not being saleable, our nurserymen devote very little time and attention to their culture and improvement. But there certainly are among our native forest trees, many that are worthy a place on any lawn, and equal, if not superior, to many foreign and unacclimated species for which we are all often only too glad to pay an exorbitant price to secure even a poor, sickly specimen. Among the number of worthy native trees—and the last whose foliage seems to defy the conquering elements with its great

power of endurance—is the oak; and, as if to add additional beauty to its majestic form in the last days of autumn, it is clothed with the most gorgeous dress of crimson, bronze and green, which makes it the glory of our autumn forest. However, their foliage is in time seared and browned from the effects of the continuous frosts and crisping autumn winds, and although often attached to the tree for a long time, still, by the middle of November or first of December their beauty is gone for the season. Were it not for an insignificant, and (by the landscape gardener) rejected native vine, our forests would be entirely devoid of green foliage after the first of December. This despised vine, our native *Smilax*, or as it is popularly called by the country people, the Bramble or Greenbrier, comes nearer being a true evergreen than any of our native deciduous plants. Holding as it does its large glossy green leaves until late in the winter, it forms a very conspicuous feature in many a thicket and grove, especially if it be in a warm and sheltered position. In our enquiry among those living near its native habitat, no one seems to know it by the names of cat brier China brier, rough-bindweed, or even sarsaparilla as the popular name is sometimes said to be applied to it in some botanical works.

Our standard botanies enumerate fifteen species as natives of the United States; all of which are found growing wild in the great Mississippi Valley, and all of which are worth cultivating; but I do not remember to have ever seen a single specimen under cultivation. I very much doubt there being a half dozen plants so grown in the country. All portions of the world furnish a proportionate number of species, many of which are of great economic value in their contributions to medicine; while a few foreign tropical species are among our choicest greenhouse plants. Perhaps it would not be amiss to say that Sir Joseph Paxton, in his Botanical Dictionary, reduces the whole species of *Smilax* to six, four of which are found in North America and two in China, while the remaining forty species he classes as varieties or synonyms of valid species. This is without doubt too conservative a view of the subject to meet the ideas of the botanical student of to-day.

As *Smilax rotundifolia*, or the large round leaf Bramble would be to our notion the handsomest and most desirable of all our native species for

cultivation, we will call particular attention to its many good qualities, with the hope that it may stimulate a desire on the part of those wanting plants of actual merit for ornamental purposes, to make a trial of this native vine; for the effort certainly will repay all cost and trouble. As seen in its uncultivated condition, we find this species growing in moist, rich ground, usually in a thicket of underbrush, where its long and flexible stem often reaches the length of thirty feet; not usually, however, growing more than ten or fifteen feet high, but creeping from branch to branch, holding fast to each one by its wire-like tendrils thrown out from the base of each leaf-stem. While the whole upper portion of the stem is thickly covered with large round-ovate or heart-shaped leaves. Sometimes it prefers a location in a neglected fence corner, when it trails along the fence, occasionally grasping a stray weed or shrub for additional support; and rarely it is seen climbing to the height of twenty or twenty-five feet from limb to limb on a thorn-apple bush or something of similar habit, where its glossy foliage makes it an object of great beauty after the tree has dropped all its leaves and fruit. Now, if we only follow nature's instruction and plant in deep rich soil and grow them to cover a fence, frame, or even on a low-growing tree, and to make up for their natural lack of branches, plant a number of specimens near together, we have from our own fields what we cannot procure from the nurseryman, *i. e.*, an evergreen vine, hardy, and most certainly adapted to our climate. One serious objection to its popularity with many will be its inconspicuous greenish flowers, but its bunches of bluish black fruit in autumn will more than compensate for the loss of flowers in spring when all nature seems to be alive with flowers.

A FEW HINTS ON THE CHRYSANTHEMUM.

BY WALTER COLES, BELVIDERE, N. J.

Having received several inquiries respecting the *Chrysanthemums* I exhibited at the Germantown Horticultural Society, probably a short article on their culture would be interesting to lovers of this beautiful Fall flower. I have been asked what varieties they were, and where they can be obtained. There were only four in number, which were George Glenny, Venice, Virgin Queen, and Eve, which I got from Mr. Peter Henderson of New York; there

are many more varieties which are just as good, if not better than those named. While in Philadelphia, in November last, I made a visit to the Horticultural Hall at Fairmount Park. The Palms and Ferns were a lovely sight, and in excellent condition. But to my eye the most striking thing there was a house of Chrysanthemums. There was almost every color you can mention, with the exception of blue, and that we must never expect to see, if we look into the natural law of colors. I made note of one or two of the most striking varieties,—Temple of Solomon, a very large yellow, extra fine; Hero of Stoke Newington, Antonella, Empress of China, Jardin des Plantes, Mrs. George Mundle, and many others. I find it best, if good specimen plants are wanted, to start the cuttings from November to January, but I prefer the former; after the cuttings are started, a cold greenhouse near the glass is the best place to grow them; never let them get dry or pot-bound. When they have obtained a height of four or five inches the top should be pinched out, to encourage side shoots; as soon as the small pots are filled with roots give them a liberal shift, which, by the end of June, will require pots from eight to twelve inches. I think the Chrysanthemum, like the rose and strawberry, delights in new, fresh loam, with one-third good, rotten cow manure. Some people will advise to fill the pot one-third full of broken pots, for drainage; but I think it is quite time for us to leave off such old whims, that our grandfathers practiced years gone by.

I found last summer I had to water our plants twice a day, without any crocks at all in the bottom, only a piece of rough turf, and the pots plunged into the ground to their rims. I think nine out of ten will agree with me that good, rough, rich loam is better for a gross feeder like the Chrysanthemum to grow in, than a lot of old broken pots. In stopping the shoots it is important to stop them all at one time. You will often see some a little stronger than others; but you will find if they are stopped, and the weaker ones are left, the growth will run to the ones left untouched, and an uneven plant is the result.

Last May I planted a row of young Chrysanthemums in a border, on the north side of the house, forming a back row of some bedding plants, mixing with each plant a good spadeful of well-rotted manure. From the end of October to the middle of December, this row of Chrysanthemums was the admiration of the town. They

flowered fully two weeks later than our neighbors'. The Chrysanthemum can be trained to almost any shape, of which I will write some other time, should the editor think it would be interesting to our readers.

A BLUE BEDDING PLANT.

BY C. D. WARDE, CONCORD, N. H.

In answer to the inquiry of "W. D.," in the January number, would suggest as a fine blue bedding plant for ribbon beds, and as a most excellent companion for *Centaurea* and *Achyranthus*, some of the dwarf compact growing varieties of the *Ageratum mexicanum*. Have seen beautiful effects produced with them in the Jardin de Luxembourg, in Paris, in the fine gardens of Hon. S. W. Hale, of Keene, N. H., and elsewhere. Start the plants early and trim to the proper shape.

NEW OR RARE PLANTS.

NEW ALTERNANTHERA AUREA.—This is a great acquisition for yellow lines in ribbon-line planting; of a fine habit, dwarf and compact; foliage light green and golden yellow—the yellow predominating.—*P. Henderson.*

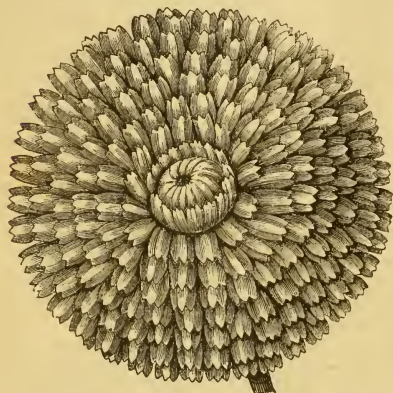
DWARF DOUBLE GERANIUMS.—These are the "newest novelties" in the Geranium line. On the Continent of Europe, they have now Princess Stephanie of this class. It grows only from ten to twelve centimeters high. The flowers are double, rose color with a light centre.

NEW DAHLIA, "JUAREZII."—The grandest novelty of the year, and not only a novelty but a most valuable and useful decorative plant for all purposes through the late summer and autumn months. Its blossoms are of a rich scarlet, and very much resemble in shape and color the well-known Cactus, *Cereus Speciosissimus*. Height about 3 ft., very bushy, flowers of very striking appearance, and quite unlike those of an ordinary double Dahlia, the florets being flat and pointed; during the fall and winter the flowers sold at fifty cents each.—*P. Henderson.*

NEW DWARF SWEET CHESTNUT.—A new ornamental shrub lately introduced from Japan. The fruit or nuts are edible, and are produced freely on plants three feet high. The nuts are as large as the common "Horse Chestnut," and are equal in quality to the common small chestnut.

The enormous size and good quality of the fruit will undoubtedly make it a valuable article of commerce, while the ornamental character of the shrub will recommend it for lawns or hedges. Perfectly hardy around N. Y.—*P. Henderson.*

IMPROVEMENT OF THE COMMON GARDEN MARI-GOLD.—Among the triumphs of modern garden art is the taking up of old garden flowers, and making them yield to the improving ideas of the florist. Every body knows the common garden pot Marigold; and, pretty and popular as it is, who would suppose that after culture for so many hundred years, anything more could be made of



CALENDULA OFFICINALIS, METEOR.

it? Yet here we have a drawing of one sent out by Haage & Schmidt of Erfurt, and which they call "Meteor," which is as "double as a daisy." Besides the double flower it has the novelty of a pale orange stripe down the centre of each straw colored petal. Now that improvement has been started, we shall expect a race of new kinds in this popular garden flower.

SCRAPS AND QUERIES.

THE DIAMOND TUBEROSE.—We are crowded this month, and have hardly room for all the long correspondence on hand in regard to this plant. It seems sufficient to note that Nanz & Neuner say they were aware that an attempt was made to impose on two eastern firms a kind which was "far from being the Diamond which we offer." They "know it to be just as they represented it," except that it was an error to say as we did, "five to eight inches;" it should be "fifteen to eighteen inches." But, since the question has been raised, they decided not to sell till they had exhibited plants this summer, so that all could see for themselves. This seems fair enough.

THE DROP WORM.—W. F. Bassett, Hammon-ton, N. J., writes: "If I understand what you call 'Bag, or Drop Worm,' I think you are in error on one point. Some of the cocoons are doubtless empty, but others are full of eggs for next year's crop, and if all of them are carefully collected now and burned, there will be none next year; as the full-grown cocoons are, from their color and size, much easier seen than the small ones, this comparatively leisure season is a much better time to destroy them than summer."

[Mr. Bassett is right. The statement was one of those unaccountable slips sometimes made for which there is no excuse.—ED. G. M.]

HARDINESS OF ROSE REINE MARIE HENRIETTE.—Mr. Terwilliger, of Saratoga, N. Y., writes: "Please state that the rose 'Reine Marie Henriette,' stood outside uncovered during the winter '80 and '81, mercury going to 32° below zero, and came out nicely, bloomed all summer and is now in bloom (Sept. 6). La France was by them, also unharmed, plenty of snow to cover them."

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

CULTIVATION OF THE CHRYSANTHEMUM.

BY D. RHIND, CANANDAIGUA, N. Y.

With very little care and simple treatment I have good success with these. I propa-

gate in March; as soon as well rooted pot them in two and a half or three inch pots, pinching them if they grow too lanky before planting out, which I do as soon as the ground can be got ready. They should be placed in a cool house or frame for a few days previous to setting out; frost won't hurt them if so treated. When

they have grown about a foot, cut them back near the ground so as to get them stocky with as many branches as possible. Afterwards only pinch the strongest shoots every third or fourth week; it should be discontinued some time in August, according to the weather. Water when necessary; make a small basin around each plant to hold it. Lift and pot as soon as the flower buds can be seen. I get plants by this system having from thirty to fifty shoots. As soon as potted plunge in a tub of water, which I do with all plants taken up at this season. Place in the shade and sprinkle overhead as long as necessary. The large flowering varieties, like Empress of India, should be disbudded, leaving only one bud to a shoot. After two weeks use liquid manure till they are almost in full bloom, then discontinue—the flowers last longer. I grow about a hundred plants this way. If there is a shorter way I would be very glad to find it out.

ISOTOMA LONGIFLORA.

BY V. DE NIDMAN, WASHINGTON, D. C.

In the December issue of the GARDENER'S MONTHLY I have noticed the remarks on *Isotoma longiflora*, and was surprised at the price asked for this plant. *Isotoma longiflora*, or *Rapuntium*, or *Hippobroma longiflora* Don., is an inmate of our gardens here for more than thirty years, and as a native of Jamaica it will never make much in winter in a cold or greenhouse, while in a hot-house it will thrive very luxuriantly, and rather too much so, as often to my great amazement—will not say at all “a pleasant surprise.” I find the *Isotoma*, together with *Pteris serrulata*, *Oxalis* and a few more other good things, to overrun our orchid and stove-houses to such an extent that it is at times difficult to state which of them is the worst weed and the most troublesome to the grower, as the *Isotoma* seeds in great quantities and freely, although the flowers generally come one by one. The plant itself, by this latter quality, will never produce a showy, striking effect as a winter-blooming hothouse plant, but is likely more adapted for out of door culture in a rockery, perhaps, among other herbaceous plants. In regard to using *Isotoma* for cut-flower work, I would have little to say, as I never have used them, but would think little adapted for this kind of work on account of their length and soft character. In speaking of the fragrance of the flowers, I would like to

mention that *Isotoma* belongs to the order of *Campanulæ lobeliaræ*, and, like a good many plants of the same order, possesses in all its parts poisonous properties, even also in the odor or fragrantcy; and as there are records of people having suffered from effects of this poisonous plant, I thought a little cautioning would be perhaps not altogether disregarded.

THE AUSTRALIAN GLORY FLOWER CLIANTHUS DAMPIERI.

BY WILLIAM FALCONER, CAMBRIDGE, MASS.

At Oakley, Mount Auburn, on November 20th, I saw a lovely specimen of this most gorgeous plant. Last spring Mr. Allan, the gardener, had a lot of seedlings, robust plants in good blooming order; some he grew in cold frames and others planted out in the borders; those in the frames gave most satisfaction. Seeds ripened by those plants were sown on August 4th, and the beautiful specimen just referred to is one of these late seedlings. It is growing in a cold frame, well packed around with dry litter and matted over when occasion requires to exclude frost. The earth in the frame is about fifteen inches beneath the glass surface, and the branches of the plant, about four feet in spread, are trained out horizontally about eight inches under the sashes. The plant is growing vigorously, and from every leaf axil arises a cluster of blossoms or buds. When we saw it, about a dozen clusters were fully expanded, and Mr. Allan assured us he had already cut off twenty-three clusters. The sunny position of the frame, the nearness of the *Clianthus* to the glass, and the cool temperature of the season, incited a brilliance of color not attained in the blossoms of spring and summer.

The great difficulty in growing this Glory Flower successfully is its susceptibility to damp off at the neck and sensitiveness to root-mutilation in re-potting. To avoid these, Mr. Allan grows his seedlings in three-inch pots, and just before they would likely need shifting knocks off the bottoms of the pots, and without disturbing the roots in the least sets the pots to within an inch of their depth in prepared beds, where the roots can ramble at will. The little pot acts as a collar-guard to the plant, and no water is afterwards allowed to be given within that collar; thus although the roots may be well watered the neck of the plant is kept dry.

The Glory Flower is a native of the desert

regions of Australia, where it assumes the form of a small scrubby bush or woody vine. Its leaves and young wood are thickly clad with white woolly hairs; its brilliant scarlet blossoms have a large black-purple spot at the base of the standard, are very showy, and vividly distinct from any other of our cultivated flowers. Although a true perennial, as a garden plant, it has usually given most satisfaction when treated as an annual.

TRICOPILIA TORTILIS AND T. SUAVIS,

BY C. H. S., BALTIMORE, MD.

The above Orchids can both be cultivated in the same way though they come from different countries. Owing to their mode of flowering they are best cultivated in pots, and I find that they are impatient of too much water when they are beginning to grow, being liable to damp off if too much heat and moisture is given at that time. I fill the pots to within two inches of the top with broken crocks, then fill with sphagnum moss tightly pressed down, and then make a mound nearly two inches high, and on the top place your plant. This is necessary, because the flowers are pendant. It would be advisable in making pots for orchids to have some small holes under the rims, through which to run copper wire to secure the plants on the moss. After they have become well rooted the wire may be drawn out. This mode of potting is suitable to all the *Tricopilias*, *Lycastes*, *Maxillarias*, *Pilumnæ*, *Bollæ*, *Batemanias* and other orchids that have large flowers with short stems. I prefer, with any of the above, to give the roots a good soaking, by putting the pots in water once every two or three days, to slightly damping the moss with a syringe. This will be often enough even when in active growth, and when they have finished, once a week will be sufficient. *Tricopilia tortilis* and *suavis* do well with a rather dry temperature of from 50° to 60° from November 1st until April, and after that to be kept from 60° to 75°. It may be that at times the thermometer will go up to 90° in spite of shading, but it will do no harm if the house is kept well saturated with moisture. *Odontoglossum Cervantesii* and all its near allies, are a little difficult to grow nicely, owing to our extremely hot and dry climate. They come from an elevation of about 4000 feet in Mexico in the shady valleys. The young growth is easily rotted off by too much heat and moisture, which is

also the case with most cool orchids. I grow *O. Cervantesii* in saucers, such as are used to place under flower pots, but the saucers are hung vertically, and the plants secured by wire through holes made for the purpose. I am growing many small Orchids in these saucers, which are one and a half inches deep and of various diameters. *Odontoglossum Rossii*, *O. Ehrenbergii*, *Oncidium Kramerii*, *O. varicosum*, all do well, and it is impossible almost to overwater them, even though they are dipped every day, in the growing season, as any surplus immediately runs off. These saucers can be made of any size. *O. Cervantesii* should be grown as cool as possible in summer, and at about 50° through winter.

STEAM HEATING.

BY WALTER M. TABER, DETROIT, MICH.

If agreeable to the readers of the GARDENER'S MONTHLY, we accept Mr. Fowler's invitation and give our experience with steam heating, well knowing that if it give others the satisfaction it has given us, the days of hot water heating, as well as those of all other modes are short. In August, 1880, we intended placing in our green-houses a hot water apparatus, when the articles in this magazine by Mr. Bochmann and Parker Bros. on steam heating, attracted our attention. And after quite a correspondence with these gentlemen, and for whose kindly suggestions we are grateful, we erected what we believe to be the first successful steam apparatus in the West. Our boiler is below the radiating pipes, thereby doing away with the use of a steam trap, which would only be necessary were the boiler placed above the pipes, and which comes to the relief of those who cannot secure drainage, to place their boiler below the ground surface. We carry the steam from the boiler through a two inch pipe to a two inch pipe crossing the ends of all the houses, above the doorways in the shed, with a drop pipe and valve of from one to one-and-a-half inches for each coil, according to the amount of radiating surface in the coil, which connects by a manifold with one inch radiating pipes under the bench, running the entire length of the house, with eight inches fall in one hundred feet, connecting at the further end of the house by manifold pipe and valve with a two inch return pipe to boiler, which crosses the ends of all the houses, receiving the condensed steam from all radiating coils—the return pipe being about one foot under the ground, and having a fall

towards the boiler, thus obtaining a complete circulation much the same as in a hot water apparatus. In the severe weather of last winter with the thermometer fifteen degrees below zero, five pounds of steam was all that was necessary to maintain a temperature of sixty-five degrees; and we find that steam will circulate in all the pipes when the gauge shows not one ounce of pressure. We have visited the establishment of the Messrs. Reneman & Bro. of Pittsburg, whose apparatus was erected we believe by Mr. Bochman, and noticed that their radiating pipes were two inches, each pipe being supplied by a three-quarter inch pipe, with an outlet of one half inch, their boiler being above the heating pipes; they use an Albany steam trap to return the condensation to the boiler, the use of which I think objectionable, where not necessary. Mr. Fowler says, "Regarding the larger pipes, their cost is nearly double that of the smaller, and if the latter can be made as effective, this is surely a saving." While I do not see any special advantage of large pipes over small except in cheapness, Mr. Fowler must know that more heat is obtained from one two inch pipe, than from two one inch pipes. Others were so pleased with the working of our apparatus, that to-day there are six greenhouse establishments in this city heated by steam, all erected the past summer; and as far as I know are giving entire satisfaction. Steam has been used to some extent in Chicago, but has never been made a success, and as I intend visiting that town soon, I may be able to tell the readers of the MONTHLY in a later number, why it is thus.

THE OLEANDER.

BY FLORAMANT.

The Nerium, commonly called the Oleander, is a much neglected though a very beautiful plant. It is an erect-growing, evergreen shrub, of the easiest culture, abundant in flower, exquisite in fragrance. They flower freely when scarcely a foot high, but will attain a height of ten or twelve feet. Hardy along the gulf coast.

To bloom them in perfection they need a stove, and yet do well in the parlor and out of doors, budding out finely. In potting give plenty of pot room, and use a soil composed of equal parts of loam, well rotted manure, and peat or leaf-mould.

Their natural period for blooming is July; but that may be changed and bloom produced at any

season. Under favorable conditions they will bloom until frost, bedded out.

One way to manage these plants is to let them have a short rest after the summer flowering, which can be effected by drying. Then trim to within a few eyes of the previous year's wood, having due regard to the symmetry of the plant, and place in a warm greenhouse, encouraging them to make a short growth before winter sets in. In the spring shift into above compost, and stop the young growth so far as necessary to make good heads. If not convenient to shift as the plant grows, give liquid manure.

Another system is to pot in spring as above; and if any of the plants have bad heads cut them down to the shape desired. The old wood will push new shoots. Keep the plants thus headed down until May, when they may be planted in the garden; or if that cannot be done, turn them out, reduce the ball of earth by probing with a pointed stick all around the sides and bottom of the ball, cutting off any very matted roots. If any of the roots are decayed cut them into the sound wood. Re-pot into same tub, filling in with fresh compost, and give very little water unless there are signs of vegetation.

These plants may also be re-potted in August; and as they are of a strong habit will not be injured thereby, and that is a convenient season to do the work, as it is out of doors. They may be wintered in the house or in a light cellar, and should then be but slightly watered; during the growing and blooming seasons, however, they should have plenty of water. Cuttings strike root with great ease if kept moist.

Neriums are generally seen, when blooming, with as much growth above the flowers as below them; this is the result of neglect. Soon after the trusses of bloom show themselves, young growths of wood start from the base, and if these are allowed to remain, the flowers are weakened and hidden. Pick them out as soon as seen, and the flowers will form beautiful heads above the foliage.

Flower buds frequently form late in the fall, lie dormant all winter, whilst the foliage and branches continue to grow, and in the spring expand into full-blown flowers, which then appear stuck in the midst of leaves, with branches all around them.

These plants are frequently infested with white scale. For that, scrub stems and wipe leaves with a strong decoction of tobacco, heated to about 100°, and clean afterwards with soap

and water; or, with a whisk broom sprinkle thoroughly with Paris green prepared in water, as for potato bug, repeating several times through the summer.

It must be noted that the wood, bark and leaves of this plant are all poisonous. Death has resulted from eating meat in which skewers of Oleander wood have been used; the powdered bark is used as a rat poison, and an infusion of the leaves is a powerful insecticide.

The principal varieties described are *Nerium oleander*, the common rose-colored single-flowering species, from which many varieties have originated; *N. O. splendens*, the most popular, a double rose colored flower; *N. O. striata fl. pl.*, with double flowers, striped rose and white; *N. album maximum*, semi-double, white; *N. grandiflorum plenum*, double rose; Shaw's seedling, deep crimson, single; *N. macrophyllum*, very double and large, deep pink; *N. album plenum*, double white; *N. atropurpureum plenum*, dark purple, rich; *N. cardinale*, double rich purple vermillion, lighter in centre of petals, very fine. *N. flavum duplex*, double yellow, fine and distinct; *Geant des Battailles*, single, light blue centre, petals edged with crimson, very fine; *N. madoni grandiflorum*, double white, free flowering, fine; Professor Durand, fine double yellow; *N. O. Elegantissimum*, a most beautiful plant with deep, silver-edged foliage, and young wood, striped white and green; and many other fine varieties. The writer, however, doubts whether there is such a thing as a truly double white, or a true yellow.

STEAM HEATING.

BY ALEX. MURDOCH, PITTSBURG, PA.

Friend Fowler can rest assured that steam will not "smoulder." It is undoubtedly the coming heater for greenhouses—until superseded in its turn by electricity—and before long is destined to enter into the construction of all new ranges of houses; if not substituted for other methods in those already built. Around Pittsburg it has been introduced with invariable success, and rose-growers from Summit and Madison have been here taking notes. Where we (John R. & A. Murdoch) grow our roses in the 22nd Ward, we this summer took out a No. 16 and a No. 17 Hitching's corrugated boiler and two thousand feet of four-inch pipe; and after making an extension of 100 feet by 20 feet, put in steam with most satisfactory results, adding a steam-pump,

with which we raise water from the brook below to water the houses and supply the boiler. Two-inch pipe was used excepting where the valves were placed; here we used one-inch pipes and smaller valves to reduce the cost of valves.

We consider steam as safe as hot water, and much easier to regulate, aside from the economy of labor resulting in the decreased number of fires necessary. After a winter's experience, we may refer again to this important topic.

DENDROBIUM CAMBRIDGEANUM.

BY WALTER GRAY.

"G. C." will find this plant do best to grow it on a block of wood or in a basket, with peat and moss; suspend it from the roof and as near the glass as possible. It requires plenty of heat and moisture when growing, and when it has made its growth, should be placed in a cooler position with less water until it begins to grow; then bring it back into more heat and moisture to give it a quick growth. It produces its flowers upon the first season's growth early in the spring. It is a grand species; flowers, dark yellow, sometimes orange color, tip crimson.

ON THE CULTURE OF THE CAMELLIA.

BY JOHN WOODING, PENCOYD, MONTGOMERY CO., PA.

The soil heat adapted to the growth of *Camellias* is a mixture of peat and rotten sod in nearly equal proportions, with a little silver sand added. Where the soil is peculiarly light and sandy, a less quantity of peat is requisite. Mix this well together, but not sifted; use it as rough as possible, as it is necessary the soil should be open and porous; the plants will have a more healthy appearance. In potting use plenty of broken crocks, thereby securing a free drainage, a circumstance indispensable to the success of the plants. The proper season for the general shifting is when the young growth is hardened, and the blossom buds for next year can be detected at the extremity of the shoots. After shifting all those that require it, place them out in the open air in a shady place; an occasional sprinkling of the foliage will improve the appearance as well as be beneficial to the health of the plants. At all times attention must be paid to watering them properly, the roots being apt to become matted in the pots, so as to render the ball of earth impervious to moisture; hence it is necessary to see that the ball of earth is moist-

ened by the water poured upon it instead of the web of fibres only, this requiring an examination of the roots, and reducing or pruning them at least once a year, a measure almost indispensable.

At the respective periods of growth and flowering, the plants will require plentiful watering; during the latter, if not regularly supplied, the bloom buds will infallibly fall off instead of expanding into flower. At other times a moderate supply is essential. The effect of constantly watering may be presumed to diminish or destroy the fertility of the small quantity of earth allotted to each plant; therefore, when the annual re-potting occurs, carefully take away as much of the former ball of earth as can be done without injuring or cutting the roots.

The Camellia may be considered as a hardy greenhouse plant, requiring a temperature only just above freezing point. Like the myrtle, it will succeed much better than when grown in a higher temperature.

The usual methods of propagation are by grafting and budding on the single red Camellia, cuttings of which are found to strike root more readily than of the double varieties. The cuttings are taken as soon as the young shoots are sufficiently ripe at the base. They are carefully prepared by being cut smoothly over with a sharp knife at a joint, and divested of one or two leaves at the bottom, and then planted firmly about two inches deep in pots filled with the Camellia compost, before described, and the upper part filled with fine sand. They are then well watered and the plants plunged over a little gentle heat and kept closely shaded for three or four months, by which time short fibres or a callus, from which they afterwards diverge, are produced. When sufficiently rooted to bear removal, they are potted singly in small pots, the sand being then carefully removed. The pots should be well drained and filled with the Camellia compost, with the addition of a little white sand. They are afterwards to be sprinkled with water and placed in a close frame or pit, until they begin to root afresh, and by degrees exposed to the air.

The succeeding season they may be potted in the same soil as the other Camellias, and similarly treated, and many of the plants will then have obtained sufficient size and strength for budding, and all of them by the following season. The best time for budding is as soon as the

new wood is sufficiently ripened, but it may be done at almost any season of the year.

NIGHT-OPENING FLOWERS.

BY J. H. KRELAGE, HAARLEM, HOLLAND.

The fact related in the GARDENER'S MONTHLY of November, 1881, page 341, of a Cactus flowering usually at night, and by exception in the daytime, is very interesting, and it would be of great interest to know the name and origin of this plant. From the given notice it might be *Cereus triangularis* (Haw.); *Cereus compressus* (Mill.); *Cactus triangularis* (Lin.); *Cactus triangularis aphyllus* (Jacq.); which in our climate usually opens at six o'clock in the evening, and lasts till eleven o'clock the following morning. It has fine white flowers, and broad flat epiphyllum-like leaves. Here it flowers very rarely, and only when of some age, and when permitted to fix its aerial roots in some brick wall. *Cereus Napoleonis* (Grah.); *Cereus triangularis major* (Salm. not Pfeiffer's), is very near to this, also with white flowers, but which open in the morning and close in the evening of the same day. If this last was not so very scarce, one could think the described Cactus to be a hybrid between the *triangularis* and *Napoleonis*. Like some hybrids of *Cereus grandiflorus*, the well-known night-blooming Cactus, also, has here a different flowering period.

ROSES FOR ORNAMENTAL FRUIT.

BY W. C. STRONG.

Fully endorsing your opinion as to the desirableness of the Dog, Cinnamon and Carolina Roses, for their showy fruit in autumn, let me add that *Rosa rugosa* (Japan) is superior, by far, to any other variety in this respect, and also that its large flowers and rich, luxuriant foliage render it one of the most desirable shrubs of recent introduction.

DENDROBIUM CAMBRIDGEANUM.

BY MANSFIELD MILTON, YOUNGSTOWN, O.

This fine Orchid from the north of India deserves more attention by lovers of the beautiful than it gets. It is a deciduous drooping species, and is shown to best advantage when grown in a basket, given plenty of water during the period of its growth, gradually withholding as the

shoots mature. The flowers, which are of a bright orange, having a crimson blotch on the temperature to grow in, and will produce its flowers more abundantly if well ripened by



JASMINUM GRACILLIMUM. (See opposite page.)

tip, are produced on the young growths during the spring months. It requires a good high light, but not too much of the burning sun.

NEW OR RARE PLANTS.

JASMINUM GRACILLIMUM (see illustration on preceding page).—We have briefly noted this novelty in our last year's volume. It seems to be an introduction of more than ordinary value, on account of the great demand for first-class winter-blooming flowers. We give the following representation of it, together with a sketch of its history with which we have been favored by Messrs. J. Veitch & Son, of Chelsea, London, through whose enterprise it was first introduced to public notice:

"A beautiful Jasmine, collected for us in Borneo by Mr. Burbidge.

"The following is Sir J. D. Hooker's description of the plant in the *Gardeners' Chronicle* for January 1st, 1881:

"A very near ally of the well-known *Jasminum pubescens* of India and China, the type around which are to be arranged a good many closely-allied species, differing in habit, in the size and number of flowers, and of the divisions of the corolla, all of them natives of Eastern Asia and its islands."

"Of these *Jasminum gracillimum* is one of the most distinct in its graceful habit, and in the abundance of its large sweet-scented flowers, which are also more copiously produced, in which respect I know of none to compare with it. It appears to be a small species, with long, very slender branches springing from low down on the stem, and curving over on all sides, weighed down by terminal globose panicles as large as the fist."

"We may add, that as a decorative plant for the stove and warm conservatory, *Jasminum gracillimum* is probably the best of recent introduction. It is exceedingly floriferous; a flowering shoot is produced from every joint, which terminates in a dense cluster of pure white fragrant flowers. The plant is continuously in bloom from October to January, and its graceful habit renders it one of the most beautiful of flowering plants for table decoration at that season."

"It received the award of a first-class certificate from the Royal Horticultural Society, December 14th, 1880.

CYRTODEIRA METALICA.—A new basket plant now popular. Of creeping habit. Its leaves are a rich bronze color, marked in the centre with pink. The surface of the foliage being covered with minute white hairs, gives it a silvery appearance; very beautiful.—*Henderson*.

BEGONIA SCHMIDTII.—Although we have several times referred to this pretty addition to the popular Begonias, we continue to have inquiries concerning it, and have thought that the follow-

ing sketch of its history, furnished by Haage & Schmidt, of Erfurt, will be generally interesting:

"*Begonia Schmidtii*, Regel. A new species grown from seeds which we received from the South of Brazil. It neither belongs to the tuberous-rooted nor to the large-leaved ('Rex hybrid') sorts and may be classed to the shrubby, small-leaved and free-flowering kinds such as the well-known species: Dregei, incarnata, Ingrami,



Weltoniensis. Among these it is certain to rank foremost and become a very popular sort on account of its extraordinary abundance of flowers; the latter are white, slightly veiled with pink, and form an agreeable contrast to the foliage, being dark green with a metallic lustre. The dwarf branching and regular globe-shaped habit of the plant makes it a most desirable acquisition for decorative as well as for market purposes. Literally covered with flowers from May to the end of October, it will continue in bloom through the winter if treated under any ordinary circumstances; so that this species may justly be called a perpetual-flowering Begonia. The culture is the same as of all the other shrubby sorts, thriving well out of doors during the summer and in a temperate stove during the winter months.

SCRAPS AND QUERIES.

SHY FLOWERING PLANTS.—"B." says: "Can you or some of your readers inform me what treatment is required to make *Ageratums* bloom freely? I have three fine varieties, *Blanche*, *Lady Jane* and *John Douglas*, and they grow very vigorously but produce very few flowers. How long does it take seedling *Geraniums* to

flower? I have some twenty which I raised from seed last winter, and most of them are over one foot in height but only one shows any signs of flowering."

VIOLET RUBRA PLENA.—"C. E. P." says: "If any of the readers of the MONTHLY have had any experience with *Violet rubra plena*, which is described as 'being of a red (?) color and very distinct,' and *Violet Marie de Savoy* which is described as being 'very large and fragrant and of a deep blue color with a white centre,' they will confer a favor on me by reporting the result through the columns of the MONTHLY?"

ANTHURIUM CRYSTALLINUM.—"Subscriber" wants to know: "Can you or some of your readers give me some information concerning the treatment of *Anthurium crystallinum*; of what country is it a native; do the flowers possess any beauty, or is it grown only for its superb foliage? I am giving my plant the same treatment that I would give *A. Scherzerianum*; but it does not seem to thrive under it."

HARRIS' LILIUM LONGIFLORUM.—Mr. Kift places on our table a plant of his "*Floribundum*," to show how freely it flowers. It having been grown in a three-inch pot. This is indeed remarkable.

We have no doubt in our mind that Mr. Kift's Lily and Mr. Harris' are essentially the same, and that it is not worth while perpetuating the two names. As Mr. Harris' was first named, we suppose under the rule of priority it will continue to be called the Harris Lily. From all we can learn this variety has become partially naturalized in Bermuda, and has come to us both direct from the island and also sent through Florida. Its original home is in Japan.

DOUBLE RED BOUVARDIA.—F. Morat, Louisville, Ky., writes: "I sent you to-day by mail, one flower of a rose colored double *Bouvardia*. It is a sport of double white *A. Neuner*. It is quite constant. I have about 300 plants of them now in bloom."

[This is very beautiful, and to say the least is quite as desirable as the double white.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden,—if the watching of the beautiful processes of nature in furnishing him food, and the many lessons they teach him, which he in a thousand ways can so pleasurably and profitably apply, have no charms or attractions for him,—he had better give up gardening, for assuredly, in most cases,—even 99 in 100 instances,—the market gardener will bring the vegetables to his own door cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords; when it ceases to do this it should be abandoned.

All those kinds that are grown for their leaves or stems require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong cab-

bage, lettuce, spinach, etc. The other class, which is grown principally for its seeds or pods, as beans, peas, etc., do not require much manure of this character—in fact they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables, requiring rich stable manure, it is best that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung; though to the smell no trace of "ammonia" remains in it.

All fruit trees like a rather dry, rich soil. On a cold, clayey bottom, diseases are usually frequent.

Do not plant deep; cut off tap roots, and do all you can to encourage surface fibres. Surface manuring is the best way of doing this, after the tree is planted. Do not allow any thing to grow vigorously around your trees the first year of

planting, nor allow the soil to become hard or dry. Let trees branch low, and prune a little at transplanting.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence on producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will, of course, not then bear the next season after planting. But this is a benefit; no fruit tree should be allowed to bear the same season.

Pruning of fruit trees, when required, should be proceeded with at favorable opportunities.

The rule, in pruning grape vines, is to shorten the shoots in proportion to their strength; but, if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning, in any case, is to get strong shoots to push where they may be desired, or to increase, with the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

COMMUNICATIONS.

FRUIT CROP IN TENNESSEE.

BY E. S. NIXON, CHATTANOOGA, TENN.

In this part of the South, the fruit crop of the season just closed affords a subject for reflection and thought that is worth looking into. Not that there can be any remedy, as the territory affected is so extensive, but a knowledge of the probable cause of the failure may do some good.

In the early spring it was noticeable that there were some localities, particularly in low ground, where the peach trees failed to bloom, and the trees looked as though they were dead, not a single bloom appearing on any of them, while on

higher grounds on either side within a short distance all the trees were in full bloom.

A strip of this kind running parallel with, and east of Missionary Ridge, in Tennessee, extended quite a distance into Georgia. This was our first trouble.

Subsequently, or on the first day of April, there was a heavy snow storm, the wind blowing from the north-west; the weather after it remained was very cold for several days. At this date the fruit trees were in full bloom. It was a beautiful sight, but to the fruit-grower a very unwelcome one.

The cold wave seemed to take a south-east course, its eastern edge being about the line of the Nashville & Chattanooga and Western & Atlantic Railroads, resulting in the almost total destruction of the fruit crop of Alabama and that portion of Georgia west of said line, and south of Atlanta. Apples, pears and peaches all fared alike, the pears probably came off a little the best.

At Calera, Alabama, there are a few pear orchards that are well cared for; they bore probably one-tenth of a crop of defective fruit, and this was the best that could probably be produced in the State.

During the summer I visited several counties of North-east Georgia, east of the Western & Atlantic Railroad and north of Atlanta, and the fruit crop there was immense. I saw hundreds of peach trees with every main limb broken down with the very heavy load of fruit on them. The apple trees were equally well loaded, but they were able to sustain the weight.

It must be remembered that the trees have no care whatever, never having been pruned to make them able to sustain the weight of the fruit. The people said this was the first crop they had seen in four years.

East Tennessee, which also escaped the cold wave, has had the best fruit crop it has had for some years. The people of that section dried the most of their fruit, which brought them a very good price, while the people of Georgia, with very few exceptions, saved but very little of it, the hogs coming in for the largest share. Some of the finest was hauled to the railroads, where the parties lived adjacent to them, but hardly any of it was shipped off. Most of the peaches (being grown on seedling trees) were small and the owners did not know how to dispose of them.

In several localities I noticed that the Shock-

ley apple trees looked very badly rusted, the leaves dropping off; many of them were dead outright, while other trees in the same orchard looked green and healthy. I fear the days of the Shockley—in the South at least—are numbered. It promised to be the best late apple ever introduced in the South, and I have seen some very fine ones this fall; but from the way the trees are decaying in various places that I have seen, even before the dry weather set in, I would not plant another tree of it, or advise any of my friends to do so.

FORCING STRAWBERRIES IN POTS.

BY WALTER COLES, GARDENER TO J. L. BLAIR, ESQ.,
BELVIDERE, N. J.

"P. F.," Jersey City, N. J., in your November GARDENER'S MONTHLY, asks for a few hints on strawberry forcing, which no doubt will be interesting to most readers of this paper. I will state the method I have most successfully fruited them. The first thing is to get a mixture of soil three parts good rotted sod, previously cut from an old pasture and one part well rotted manure thoroughly mixed. Fill as many three inch pots as the required number of plants you wish to force, sink them to their rims alongside of the rows from which you propose to obtain your plants; this should be done as early as possible, for in this earliness depends the success. Layer the young runners into the three inch pots; keep them well watered, and in about three weeks they will be rooted nicely. Be careful only to have one plant in a pot, as one plant produces better results than two or three. As soon as the small pots are filled with roots, they are ready to be potted into six inch pots which I consider the most suitable. They should be potted with the soil above described, rather firm. Then stand them in a open, airy situation; never allow them to get dry, but encourage them to make as much growth as possible, so as to get the six inch pots well filled with roots. If not well filled with roots before the end of the season you might as well throw your strawberry plants away as to attempt to force them. If it is convenient, after the plants are potted they had better be plunged to the rim in sawdust, coal-ashes or waste tanbark, which will keep the plants moist. Be careful not to plunge them or place them anywhere for the worms to get through the bottom of the pots. Leave the plants in this open situation until the middle of November. Then they should be put

in a cold frame, the pots plunged to their rims in some light material, or an old hotbed pit, filled with dry leaves would do as long as it keeps the roots from freezing, and so they can be got at easily at any time for the forcing department. The ashes should be put on to keep the plants from severe freezing, but air should be admitted on all favorable occasions to keep them as cool as possible, for one should imitate nature as near as possible; therefore, the plants should be in their dormant state at this time. Now the time of introducing the first lot of plants to heat will be considered with due regard to the time when ripe fruit is expected.

If wanted by the first of March, the first lot had better be brought in about December 15th or 20th, into a heat not exceeding 45° or 50°; about this temperature should be maintained until the fruit is set. After the berries are set the temperature may be increased to 60° by night and 80° by day, with sun heat, with plenty of moisture. The plants should be liberally watered with liquid manure while they are swelling their fruit. As soon as the fruit begins to color, less water should be applied and more air; it makes the fruit firmer and better flavored. Of course a batch can be brought in every two weeks in succession. We are not yet done with those forced plants, for if planted out in the garden in April, and all the runners kept pinched off, they will fruit again in autumn, when a dish of strawberries would be very acceptable. I have forced many hundred strawberries every year, for eight years, until this year. But here, I am sorry to say, we have not the room or conveniences.

FRUIT NOTES FROM ENGLAND.

BY C. M., RYDE, ISLE OF WIGHT.

I have been interested in your American fruits and have obtained many sorts for trial in the past few years. I have a good stock of them now, and next season hope to fruit quite a number of them. Of strawberries I am much pleased with the Boyden. Some that I had in pots last season forced well, fruited freely, and the fruit was very fine. The Cumberland Triumph also promises well. But I am disappointed in Charles Downing. The fruit was very small, which surprised me, for, from what I had read of it, I had formed the idea that the fruit was of good size. The peaches promise very well. The Alexander's Early gave me a few fruits last season, as also did the Oldmixon—the latter very late in

the season. I see Rivers speaks very highly of the Alexander. It seems to bear very abundantly. The stock on which you work the peach—the seedling peach I think—seems much better suited to the healthy growth of the tree than does the plum stock used by our nurserymen; and I like the look of American trees much better. With these trees stock and graft well away together. This is not the case with the plum stock. The peach never takes kindly to it, and the result is a gnarled looking joint which does not suggest, nor is it favorable to a healthy growth.

I doubt not but I shall get something good from American pears and apples, but I must wait awhile before being able to say anything positive of them.

American blackberries do well with me, but somehow I don't think they would be cared for by our people. Of all the American raspberries that I have tried, there are none better than our own, if so good. There is a certain flavor which the Antwerp class have which seems lacking in American sorts, decreasing their value. They seem not so soft, even when fully ripe, as ours are, and not so good flavored.

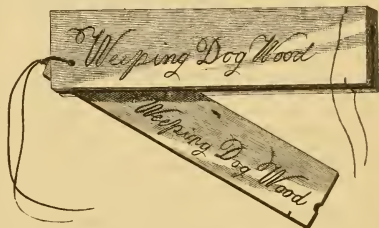
I have not yet fruited any American grape vines, but I have a Concord planted in a favorable place, and from the good growth made last year I think I shall get fruit this season. But our summers are hardly hot enough for these grapes out of doors, even here in the south of England. Occasionally a summer will be favorable enough to color grapes of the Black Hamburg, growing against a south wall, but never enough to ripen them. Still, American sorts may do better with us.

EDITORIAL NOTES.

KANSAS PRODUCTS.—The farmers of Kansas raised nearly one hundred and twenty-three millions of dollars of produce the past year. Pretty good for a State reputed to be "drouthy," and in a "drouthy" year.

MILD WEATHER.—The English seem to have had the same mild weather to new year that we had. A correspondent of the London *Daily News* says on December 5th: Fuschias were still in bloom in the open air of the Isle of Wight, and that he gathered ripe raspberries from late Fall growths, and strawberries were getting ripe.

A NEW TREE LABEL.—"J. H.", Stanwood, Iowa, writes: "I send you a sample of a new Label designed to be used on all nursery stock. The name is to be written on the outside, and inside it is also to be written, to keep a record of the name in case the outside should be washed out by the rain or weather. They are not very



smoothly made yet, but you can see what they are meant for. Please attach them to a tree, and you will see how they will do. I have some that I have used for a year, and the writing inside is as good as when put on, but the outside is gone."

REMEDY FOR BARK SCALE.—An Iowa City, Iowa, correspondent sends us an article on his manner of applying a wash for scale, but has omitted to state what it is that is to be used as the wash.

SEASON AND PEARS.—Few fruits are more easily affected in their good qualities than Pears. A correspondent of the London *Garden* says, that in England, Williams' Bon Chretien—our Bartlett—was almost flavorless in his part of England this year. Even with us the time of gathering makes some difference. As a rule we believe the Bartlett is best when gathered before it is thoroughly mature. In other words best when ripened off the tree.

PHYLLXERA LAWS.—The *Am. Naturalist* says: The existing laws regulating the traffic in plants with a view of preventing the introduction of the Grape Phylloxera, are thus summarized in the annual report of the Syndical Chamber of Nursermen at Ghent.

"Introduction of living plants is wholly forbidden in Italy, Spain, Turkey, Roumania, Algeria, Cape of Good Hope.

"Introduction of living plants is permitted, as usual, except in the case of vines, which are prohibited—Germany.

"Introduction of living plants packed as usual, is permitted, but with a certificate of origin, in

Switzerland; and a similar certificate attested by a consul in Austria-Hungary.

"Introduction under ordinary conditions if provided with a consular certificate, *viséed*, is allowed in Portugal and its colonies."

PROTECTION FROM DROUTH.—While some are talking of contrivances against drouth, Mr. C. M. Clay, of Madison, Ky., gives us the following excellent ideas:

Deep cultivation is therefore essential to all high culture. It gives more food and space to the roots of plants, and thereby increases production, but in dry times it especially secures more moisture. The deeper the culture the more rain is secured against surface drainage; Hence, steep lands deeply ploughed are often saved from washing, the soil absorbing all that falls, and no surface drainage taking place. I am now eating roasting ears of sweet Mexican corn which grow upon stalks having had hardly a single inch of rain. The ground was ploughed deep and well pulverized; then the crop was ploughed and hoed often, not waiting for weeds. The space was small and used as an experiment. The light rains and dews were utilized by immediate hoeings, breaking all clods, and drawing the damp surface into broad, flat hills, thus covering up, to some extent, the moisture. Squash vines, which could not be hoed, laid down in the same soil and ploughing, are entirely dead; and watermelon vines in grass sod, turned ten inches deep, and followed by a small plow throwing five inches more soil upon it, making in all fifteen inches of depth, are barely alive. Yet the corn grows under culture, the melons not permitting it.

SCRAPS AND QUERIES.

GRAPES FOR A COLD GRAPERY.—"S. H.," Yarmouth, Mass., says: "I wrote you last month, but it may have arrived too late. Which is the best vine for a cold grapery, Gros Colman or White Syrian, and which are best vines to get from the South of France? Please answer in your GARDENER'S MONTHLY."

[It should be borne in mind by correspondents that it takes a great many days work for the Editor to answer all the letters, and prepare for a whole month's number of the magazine. The matter for the printer has to go to the office, for the greater part, a month before the date of publication. Yet it is not unusual for some correspondent, who may write on the 20th of the month, to wonder why there is no notice of his letter, when the magazine appears a few days later. We do not wonder at this misconception, for few persons have a full idea of the immense amount of work involved in getting up a num-

ber like ours. In regard to the grapes, we would not advise either of the grapes for a cold vinery. There is nothing equal to the Black Hamburg for this purpose. Nor do we think there would be anything gained by introducing, for this purpose, any from the South of France. Those which have been already well tried in our vine-ries should be preferred.—Ed. G. M.]

CULTURE OF THE QUINCE.—Mrs. Alice M. A., Kennett Square, Chester Co., Pa. This lady inquires for information as to the cultivation of the quince. It is remarkable that so little has been said of the culture of this fruit in works on fruit culture, for it is one of the most useful of fruits, and when well cultivated one of the most profitable for market ventures. Though not seemingly understood by authors on fruit, it is by the old-fashioned but truly practical German fruit gardeners of Southern Pennsylvania, where large quantities are very profitably grown.

For their successful cultivation there is nothing like a rich sandy soil. All fruits hate poverty, but none turn up their noses more at the man who cannot afford manure, than the quince. It dearly loves to be where it can have the washing of land above it, and hence when it finds itself at the base of a steep hillside, it feels just at home. Although for this reason it loves river bottoms, it does not like standing water about its roots; indeed, what is jocosely termed wet feet by some fruit growers, is the especial abhorrence of the quince. All persons cannot have just such situations for their quince trees, but fortunately the plant will grow on the driest soil, with good success, if the surface be well mulched. If one has the chance of hauling some sand from ditches or river bottoms and spreading it under the high ground trees, they will do well. If this cannot be had, old corn roots, gathered in spring from out of a corn field, or any similar waste material that may help to keep the body of the soil moist and cool, does good. Kitchen waste mixed with coal ashes is a capital mixture to spread under the trees to keep the surface cool and make the trees grow.

To keep the soil cool and to keep the plants manured enough to grow strongly, is the chief art of quince culture; but a few words may be added on pruning. No fruit tree is so much benefited by the free use of the knife, but only to cut out the poor, weak branches. The strong and vigorous ones should never be touched.

The chief troubles arise from the fire blight,

spur blight, and the quince borer. The best precaution against blight is annual washing of the tree with a wash of lime and sulphur. It may not be a perfect insurance, but it goes a good way. The quince borer works in near the ground. If a piece of brown paper be tied around the stem, below the ground, and extending several inches above ground, and then well

greased or tarred, it is a complete protection; but one must be sure there are no borers in the wood when the paper is put on. It is best to go over the trees the following season and see whether any have been accidentally enclosed. Where a borer has gained an entrance a piece of flexible wire is the best kind of messenger to send in with a notice to quit.

FORESTRY.

EDITORIAL NOTES.

UNEXPLORED TERRITORY.—If the enclosed newspaper paragraph correctly represents the case, there ought to be a good field here for the botanist as well as the lumberman:

"Vast pine forests containing upward of 24,000 millions of feet of a superior quality of pine lumber, with facilities for getting it to market equal to the best, have been discovered up the Spanish River in Ontario."

REDWOOD TIMBER.—Some Redwood timber, *Sequoia sempervirens*, used in the stockade at Fort Ross, in Mendocino Co., California, by the Russian Fur Company, in 1811, was found recently to be perfectly sound, though in the ground seventy years. It has the habit of sprouting when cut down, as the chestnut does in the East, and this second growth makes equally good timber with the first.

TIMBER OF BRITISH COLUMBIA.—Professor Dawson estimates two-thirds of this territory to be yet under timber. The Douglas Spruce "Western Hemlock," and "Red Cedar," are said to be the chief timber trees.

FOREST SCHOOLS IN THE OLD WORLD.—We are often told that our country will never manage forests profitably till we go to the old world and learn how to do it. But there is the celebrated "New Forest" of England. It comprises 63,000 acres. The timber is saleable, but the sales last year were about \$540,000, while the expenses were about \$600,000, or \$60,000 loss, from even full grown timber.

PROFITS OF FORESTRY.—It is very difficult to gather from figures in foreign works whether

the forestry of the old world is profitable or not. For instance, one of the best in England is said to be the 20,000-acre forest of Dean. It is said to be very profitable. But the only figures we find are those which show the income over expenditures in a single year. Last year it is said to have been "very profitable," because the income was over \$24,000, and the expenditures but about \$15,000. No reference whatever is made to the capital account, or the years when nothing came in. It will be seen that even this way of counting "profit" only gives 45 cents an acre.

RAPIDITY OF GROWTH IN AMERICAN TIMBER TREES.—In Europe—at least that part of it which influences our literature—forest trees grow slowly and endure long. The "preservation" of old forests, and especial protection to young ones, becomes a question of grave national importance. Most of the newspaper talk, if on forestry in our country, is derived from library studies, and not from practical acquaintance with American trees. Noting the opinions of the GARDENER'S MONTHLY on this subject, the *Lancaster Farmer* well remarks:

"As a general thing, people greatly exaggerate the length of time required for a forest to grow up, and it is this as much as anything else, that causes the reluctance that exists in regard to planting. Let any man who located in Lancaster thirty years ago, take a stroll along those places which had not a tree or shrub on them then, and he will be astonished to now find large buildings perfectly embowered in trees. Thirty years more, and many of these trees will become large, unwieldy and perhaps dangerous, and will have to be removed, and younger and smaller ones planted instead. If sixty years develops so much, what may be expected from one hundred and sixty or two hundred in an open country?"

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

FERTILIZATION OF KALMIA.

BY PROF. D. P. PENHALLOW, CAMBRIDGE, MASS.

The stamens of *Kalmia* are drawn down and backward by the expanding corolla, to such an extent that, when released from their attachment by insects in search of honey, they throw their pollen up and forward toward the stigmatic surface with considerable force. A few measurements gave the following as the distances to which the pollen was projected:

	Vertically.	Horizontally.
<i>Kalmia glauca</i> .	5.2 c. m.	7.5 c. m.
	6.0 "	8.0 "
	7.5 "	
<i>Kalmia latifolia</i> ,		14.0 "
		9.0 "
		13.0 "

From this it is evident that, while the direction of the pollen is toward the stigma of the same flower, the chances are more favorable for its reaching any other flower of the same inflorescence.

KALMIA POISONOUS TO SHEEP.

BY W. F. BASSETT, HAMMONTON, N. J.

Since writing upon this subject for a previous number of the *GARDENER'S MONTHLY*, I have been informed by a Hammontonian who formerly owned a sheep farm in Pennsylvania, that he had often seen sheep poisoned by "Laurel," and I have no doubt that if necessary, I could soon produce positive evidence sufficient to convince the Editor even without a chemical analysis; although I see no reason why if prussic acid exists in our *Kalmia*, it cannot be taken from it as readily as from the European Laurel.

A case of poisoning by Wild Cherry was reported in Massachusetts some years since, but in this instance it was either a horse or a bovine that was poisoned, and the branches of the tree were cut off and thrown over a fence. I think I saw this in the *N. E. Farmer*, and in comments upon it the editor or another correspondent stated that Wild Cherry and Peach leaves contained

prussic acid, but in small quantity, and animals seldom ate enough to produce serious effects, and that the animal poisoned had probably eaten more freely because the leaves were wilted.

[Wild Cherry—*Cerasus serotina*—does contain prussic acid, as also does the Laurel, which is *Cerasus lauro-cerasus*. But the "Laurel" of the Hammontonians is not a laurel, and therefore need not necessarily contain the poison which the laurel has.

There seems to be no reason to doubt but that sheep and perhaps other cattle sometimes die after eating, not only *Kalmia* leaves, but many other green things, when they suddenly come on them amidst the hunger of a snowed-up time. As chemical analysis seems unable to find any poison in these plants, it is just as reasonable to suppose they died from having made beasts of themselves under temptation, as that the plants are poisonous. We have known cows, horses and rabbits, time and again to die from eating clover; but who will say clover is "poisonous?" It must not be forgotten that we do not dispute the death of the cattle; our point is that the laurel is not poisonous.—Ed. G. M.]

NIGHT-OPENING FLOWERS.

BY J. H. KRELAGE, HAARLEM, HOLLAND.

Referring to my letter of 14th of November last, I can now give a new example of the changing of the flowering time of hybrids of *Cactus* obtained from the night-blooming sorts. There are several such hybrids already known in collections. Under the name *Cereus hybridus speciosus cum grandiflora* (Newbert) there is given in the *Deutsche Magazin für garten und Blumenkunde*, Stuttgart, 1881, number 10, page 309-311, description and colored plate of a *Cactus* obtained from *Cereus speciosus* crossed with *Cereus grandiflorus*. It has somewhat the form of the last and much of the color of the first. The flowers of this hybrid open in the evening, and last till the middle of the following day; it has scarcely any smell. This is a new proof that hybrids between night-blooming and other *Cactuses* have an intermediate period of flowering.

EDITORIAL NOTES.

STOMATA.—The *College Speculum* states that a student of the Lansing Agricultural College, found that the upper surface of a leaf of marigold, *Calendula officinalis*, of four square inches contained 27,008 stomata, the lower 40,512.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—For the ensuing year the officers elected were: President, Dr. Joseph Leidy; First Vice President, W. S. Vaux; Second Vice President, Thomas Meehan; Recording Secretary, Dr. E. J. Nolan; Corresponding Secretary, Dr. G. H. Horn; Treasurer, W. S. Henszey. Dr. Ruschenberger, for twelve years President, but who declined a re-nomination, was added to the councillors.

HOW TREES SPREAD OVER CLEARED LAND.—If a large tract of land is cleared for culture, and, after some years it is neglected, it is not long before forest trees spring up all over it. This is a well known fact, especially in the Southern States. It is not that the seeds are already in the earth, or they would have sprouted and been destroyed by cultural operations; but the seeds are carried there by various outside agencies. Pine seeds for instance are blown some distance by wind or on to the feathers or backs of animals, and are dropped often at long distances from the parent tree. Heavier seeds with acorns and nuts are carried by birds or animals as food, and a few escape eating, and then grow, and in numberless ways get a chance to grow a long distance from the original tree. In a few years, according to their kind, these again produce seed and form new centres of distribution, till, in say one hundred and fifty years forests may appear as many miles away from an original forest centre. If however anything happens to keep the trees from growing high enough to mature seed, such as the browsing of animals, or prairie fires, extension from a centre could not go on. We thus see how there are circumstances which sometimes favor the extension, and sometimes restrict the forest area.

These views have been recently narrated by the writer of this in papers on the "origin of grassy prairies," and "on the timber line of high mountains," but some recent inquiries make a repetition necessary.

THE UNIVERSITY OF MISSOURI.—Some of the agricultural colleges have been great failures, and the agricultural papers are full of the lan-

guage of woe thereat, and wish them all abolished. But they are not all so by any means, and where they are failures it is the defective management, and not that the principle is wrong. The fact that some have proved institutions of which the whole nation is proud, shows that they are necessities that should be encouraged. The failures only show that education is like any other business in which the failures are always more numerous than the successes. It is a pleasure to know that the Missouri college at Columbia is following in the track of its successful sisters. By judicious management, over \$200,000 have been realized out of a part of their college lands, and in all probability the balance will bring enough to make a fund of nearly half a million dollars. We happen to know that among the sciences, botany and horticulture—twin art and science—have always commended themselves strongly to the management, and we are therefore always glad to hear of the financial success of the Institution.

FLOWERS OF A FIG.—Talking to some young folks recently about flowers and fruit, and remarking that no one could produce an instance of any fruit without flowers, a young lady said that surely there were no flowers on the fig, for her parents had a plant growing in a tub for years, always producing fruit, but it never had a flower on it. But there is flower even to the fig, hundreds of them inside a single fig, for it is inside of what is popularly called the fig that the flowers are found. As we told our young friend, if the fig is cut open in an early stage, and the interior face examined with a common pocket lens, it will be found completely walled with little flowers, having each the usual parts of fructification. This also may be further remembered when examining the interior of a ripe fig, for the mature seed will be found, such seed having been produced by a single flower.

One thing however is true, they have not the flowers of ordinary plants, that is to say flowers that we can readily see and admire, as we can the flowers we ordinarily cultivate for their beautiful blossoms. Still they have many of them beauty of form, especially in the foliage, and are very popular on this account. They deserve more than ordinary attention from the cultivator, because of their ease of culture, very few plants taking to neglect as kindly as they do. They are especially valuable for room culture, perhaps from this very fact that they can stand abuse. There

are hundreds of species known to botanists, but somehow not a large number of them under culture. One of the best that we know of is a com-

It has been introduced from the South Sea Islands. The leaves are shortly stalked, lanceolate in outline, and sinuately lobed, the lobes again sinuate



FICUS EXCULPTA.

paratively recent introduction, and known as *Ficus exculpta*. A handsome plant, furnished with evergreen leaves of a peculiarly elegant form.

so as to produce a prettily-cut margin, the curious crenations giving the leaf the appearance of having been stamped or punched out. In the

upper half the lobes become so much enlarged that the margin is deeply pinnatifid. This was one of the twelve new plants with which Mr. William Bull of Chelsea, near London, England, gained the first prize at the Provincial Show of the Royal Horticultural Society, held at Preston in 1878.

A LUCKY BOTANIST.—There is a great deal in industry, but after all there is such a thing as luck. "Only think," said recently to the writer of this, friend Isaac C. Martindale, the well-known banker and botanist, of Camden, N. J., "I had all the known ferns of the United States in my herbarium but five, and was wondering where I could possibly procure them, when I chanced to examine a bundle which had been waiting some time, and which I did not consider of great importance. Judge of my surprise and pleasure when I found four of the five in that. Now, when I get *Adiantum tricholepis*, I shall have a dried specimen of all." And so we write this paragraph, not merely to suggest to the lazy that there may be "luck in old chests that have long lain hid," but also that if any one has a spare bit of the much desired treasure, they could not do better with it than gladden the heart of one who studies chiefly that his own collections of intelligence and material may be freely at everybody's service.

THE CANDLE TREE.—This Chinese tree, which for a hundred years or more has been one of the popular street trees of New Orleans and other Southern cities, is creating some attention in California just now. It is believed that tallow can be obtained from these trees cheaper than the illuminating oils now used in light-houses and elsewhere. The colored candles used in the decorations of our Christmas trees, are said to be made from this wax. Can any of our New Orleans correspondents tell us of any experiments actually made there? The botanical name is *Stillingia sebifera*.

SPARROWS IN AUSTRALIA.—The *Sydney Mail* of July 16 says: "On Wednesday a deputation from the Agricultural Society and Chamber of Manufactures interviewed the Chief Secretary, to ask him to introduce an act for the destruction of sparrows, and pending this to appoint an honorary Sparrow Board to prepare and distribute poisoned wheat and give advice. Mr. Bray would not promise to introduce a Bill until it was known what action the other colonies had

taken, but thought a board might be appointed."

ODOR IN BUTTERFLIES.—Miss Mary E. Murtfeldt calls attention, in the April number of *Psyche*, to the fact that she observed, while spreading fresh male specimens of *Callidryas eubule*, a delicate, violet-like odor emitted from the specimens, and which was retained, to some extent for several days; the females being not at all fragrant.

DOUBLE BROODS OF INSECTS.—At the Lansing College Natural History Society, Professor Cook spoke of the curious fact that many insects are double brooded this year, such as were never known to be so before. He mentioned particularly the tent caterpillar, the tomato moth, and the luna silk moth, although the latter is commonly double brooded farther south.

MOVEMENT IN ROOTS.—At the Cincinnati Meeting of the American Association for the Advancement of Science, Dr. Beal presented a paper on "The Movements of Roots in Germinating Indian Corn, of which the following is an abstract: "Mr. C. Darwin in his last book says, 'In whatever direction the primary radicle (or root) first protrudes from the seed, geotropism (or the attraction of the earth) guides it perpendicularly downwards.'"

"Dr. Beal studied over 400 kernels of sprouting corn, of seven or more varieties. These, after starting a little, were pinned fast to a stick and put in a dark place, over water. Most of the roots went obliquely downwards, many making one or more coils on the way, while some went off horizontally; some went upwards, directly or indirectly. One of those which went upwards made two coils, another made three. All the experiments did not coincide with those of Darwin."

FLOWERS OF SOUTH CAROLINA.—The following extract from a letter of a lady living in a small country village in South Carolina will please our readers: "You must be aware how very difficult has been in our State, the collection of wild flowers; for the deadly effects of malaria engendered in our swamps deters the boldest from frequenting their environs. Happily our village is healthy, and from it we make long journeys with a light rockaway and good horse, the trip often lasting all day long. I doubt if any spot (except California) in our country produces more lovely flowers than our own environs."

SCRAPS AND QUERIES.

FRUITING OF THE MAIDEN HAIR TREE.—Mr. B. Landreth writes: "In the report of a meeting of the Academy of Natural Sciences in the Philadelphia *North American*, I read that Mr. Meehan referred to some seeds of the *Salisburia*, or *Ginko biloba*, from a tree growing on the grounds of C. J. Wister, in Germantown, and stated that they were probably the first produced in the United States. The plant has been considered strictly dioecious, but the fact that these seeds were borne by a tree at Germantown, there being no flowering specimens nearer than Woodlands, would indicate that the commonly received opinion is not correct. The subject of the sexes of plants was further considered, and evidence was advanced to support the opinion that distinctions of groups in coniferæ, founded upon sexual characters were not of much value.

"I have noticed the above paragraph respecting the seeding of the *Salisburia*, and take pleasure in informing you that the largest tree at Bloomsdale has produced fruit since 1871—ten years; the past season fully a peck. There is no other tree that I know of for miles near it."

EVOLUTION OF HEAT IN PLANTS.—"D. P. F.," Hanover, York Co., Pa., asks: "Can you tell me where to find any information in regard to the evolution of heat in the growth of plants? Is there much heat evolved and is this in proportion to the amount of growth and vigor or not?"

[We do not think there has been much written anywhere about this subject, except what has appeared from time to time in the pages of our magazine.

We have taught in our pages that in all vital action, equally in the vegetable as in the animal kingdom, the evolution of heat is an attribute of life. In other words the decomposition of food is essential to life, and heat is evolved by this decomposition. That there is a specific degree of heat in plants is proved in various ways. For instance, if a maple tree be subject to several weeks temperature, say of near zero, and suddenly the temperature rises to 38°, the sap will run out in streams from a cut branch, and, during the night following icicles often form a foot long. If there were not a specific degree of heat in plants the juices of the tree would freeze solid, and it would take days to thaw when protected as it is by non-conducting bark. The sap

could not run out freely, immediately the temperature of the atmosphere rose above the freezing point.

Again, a very good illustration of the way in which a plant can hold its heat in spite of external influences may be seen on a warm day towards spring, when the leaves and fences are covered by thawing snow. The steam will arise under the warm sun, from corn stalks, dead leaves, or dead wood in fences, but not from living leaves. The dead matter readily receives heat from the sun—the living plant resists heat as readily as it resists cold. A living tree seems cool to the hand in hot days, when a dead tree or a post is warm.

Sometimes we find parts of plants warmer at times than at others, and especially when they have a great deal of work to do—just as we find to be the case in animals. It has been found that when a palm or a large flowered aroid is about to open its blossoms a thermometer thrust into its spathe will show a temperature of 80°, while the external air may be but 70°. This shows that plants have some specific heat.

Just what this is, however, so far as we know, has never been determined. What has been ascertained is chiefly in the direction we have here outlined, and may be reduced to little more than this, that life in plants and life in animals in its relation to heat is substantially the same.—Ed. G. M.]

BANANAS FROM SEED.—"D. B. W.," Crockett's Bluff, Arkansas, writes: "You say 'it is generally known that the ordinary banana never produces seed.' 'The fruit is a pulpy seed vessel, but the seeds *never* perfect.' I can hardly think this entirely correct. There must be some place where this plant perfects seeds, else where do the varieties come from? I have found instances of individual plants of a polygamous species, like the persimmon or grape, that produced fine fruit containing no seeds, but had supposed that all plants that produce what are commonly termed fruits also produced, at least some of the plants of the same species, perfect seeds. I believe we have plants that flower but give no seeds; also plants that neither flower nor produce seeds. For instance we have a rank growing three-sided and very common sedge in the Illinois river swamps that produces neither seeds nor blossoms. I am also informed that the 'cane' of the Southern 'cane-brakes' neither flowers nor seeds; also the 'sugar cane.' The sweet

potato shows no bloom in the Middle States, but it must give bloom and seed somewhere. With the cane of the 'cane-brake' I have heard the rumor that it does not bear seed, disputed. As a fact I found young, small isolated plants of it everywhere in South-western Arkansas, seemingly seedlings. The query results, do not all species bear seeds under certain conditions? Or are there some that only reproduce their kind by self-division?"

[When a botanist or gardener says "never," he seldom means that there is no possibility of an exception. He simply means that this is the rule within a very wide experience. There is little doubt but that the banana has produced sometime during its existence, and possibly would seed,—perhaps does seed at times somewhere on the earth at the present time. There are perfect female flowers and perfect grains of pollen; it is only necessary that some conditions occur in addition to these to make the flowers seminally fruitful. For all this it is true so far as we know, that no person living ever saw a banana seed.

Varieties, however, are not necessarily produced from seed. We received once from the editor of the *Prairie Farmer*, a bunch of sweet potatoes, all attached as they grew to one parent stem, in which half the tubers were tapering and white, and the other half blunt and red. But this plant never flowers under Illinois culture. The kinds originated as many other things do, by 'bud-variation.'—Ed. G. M.]

CAMBRIDGE BOTANICAL GARDENS.—"Dear Editor: As it is not true that the late Mr. John A. Lowell left \$20,000 to this establishment 'on condition that it be called the Lowell Botanic Garden,' we should like to have you contradict the statement. That would not be like Mr. Lowell in any case. Certainly not in a case

where other individuals have given as much, and where other equally generous gifts are expected.

"What Mr. Lowell did was to add \$20,000 to the original subscription fund for the foundation of the garden, and to ask that this be named the Lowell fund, in memory of his grandfather, who originated the subscription and was most influential in furthering it and in founding the garden. The announcement of the terms of the bequest was, in the first instance, clear enough; but one Boston paper misread it, and distant papers and magazines—your own among the rest—copied the error, which appears to spread farther and faster than our correction. It is still open to any liberal man of wealth by making a sufficiently ample donation to have this garden named after him.

ASA GRAY."

COCO GRASS.—"D. B. W.," Crockett's Bluff, Arkansas, writes: "In our travels in Arkansas we came across a grass with the local names of 'coco grass' and 'Johnson's grass,' near the mouth of the Arkansas river. This grass appears to be a terror to the cotton planters, for when it gets a start on a cotton plantation they cannot kill it out or get rid of it. It grows from four to eight feet high, and spreads rapidly from under-ground stems, or rather suckers from the roots. It also grows readily from seeds. By some it is thought to be a great acquisition to this almost grassless region, for it makes a great abundance of most excellent pasturage for stock, and on good land makes from two to four heavy crops of hay in a season, that sells in the New Orleans market for nearly the same as the best timothy hay. What can you tell us about it, if you can recognize it by these local names?"

[We do not know the plants intended by these local names.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES.

BY JACQUES.

The Mandrake.—

Not poppy nor mandragora,
Nor all the drowsy syrups of the world
Shall ever medicine thee to that sweet sleep
Which thou ow'st yesterday. OTHELLO III. 3.

Mandrake is a solanaceous plant and partakes of the usual poisonous character of the order. The roots will sometimes go four feet deep, and have been known to live for fifty years. Sometimes they fork so as to somewhat resemble human forms; but many of those offered in Europe are made from grafted Bryony roots. The

"insane root" of Shakespeare (Macbeth) is the Mandrake. *Mandragora officinarum* is the full name.

In our country "Mandrake pills" are made by the quacks from *Podophyllum peltatum*, a plant of the Berberry family; the May-apple of the woods. The Skunk weed is of the Arum family. *Mandragora officinarum* is a native of the south of Europe—Greece, &c.

The Salisburia again.—In a long course of reading on horticulture and arboriculture, the writer recollects of no allusion in the English books to the peculiar use mentioned in these columns of training it to shapes and on walls. "You can do anything with it," is a true remark. If any reader can point out notices, or even a notice of this we should be glad to have the reference.

Grouping.—Nothing perhaps in the way of a small group can excel the Dogwood and Judas tree planted almost in contact. They bloom early and together, the one nearly white and the other red.

The Eucalyptus, as it is more and more planted and studied, continues to prove a success. In Algeria the best results are found, malaria disappearing wherever the wonderful tree is planted. On the Campagna around Rome, at a place called the Three Churches, a place abandoned every night because of the disease prevailing, it is found sufficiently healthy and the monks sleep there with impunity. What a blessing this proves, and how sad to think that the world has been so long deprived of the benefit. With quinine and Eucalyptus, a new era in medicine, nay, in the world, begins.

Ants.—A new traveller in Africa has come across a part of the country where ants are found as large as roaches, and prove themselves masters of man and beast. They make every known animal disappear, infesting the napes of cattle and killing them outright. Dr. McCook, we hope, will not endeavor to introduce them for examination.

Sir John Lubbock, who is a minute observer of nature's doings, says: "The flower of the little *Linaria* of our walls pushes out into the light and sunshine, but as sure as it is fertilized it turns round and endeavors to find some hole or cranny in which it may remain safely until the seed is ripe." See his curious articles republished in the *Popular Science Monthly*.

Virginia and the Grape.—It appears that Vir-

ginians in the neighborhood of Charlottesville have turned their attention, successfully, to raising wine grapes, and that an American Burgundy they make is in greater demand than the supply. Thus far the great enemy of the grape vine has not appeared there.

UNDER THE WILLOWS AT LICHFIELD.

BY WM. T. WARDING, MOUNT HOLLY, N. J.

An able and pleasant writer, much impressed with the grandeur of arboreal beauty, thus feelingly alludes to his leafy favorites. "Trees seem almost human in sociability, and in isolation." And while acknowledging the truth of his observations, your correspondent has often thought there could be little that was human in the bipedal creature, in whose bosom there is no love for either flower or tree.

History informs us, that from the first man made, to the wisest of men, trees and flowers were duly valued for their relative uses, and picturesque beauty. And that the modern man of refinement and taste, greatly enhances his happiness in their cultivation and care, is obvious, to all who see and understand.

That certain biblical trees were justly regarded with feelings akin to reverence, by the pastoral patriarchs of old, the sacred writ frequently testifies; and that we, in our day, should love them for their own sakes, is not to be wondered at.

A grand and stately old tree is a living monument of the creative power of the Great Architect of the universe, who made it "a thing of beauty," to make glad the heart of man, who wisely appreciates the good our Father sends. Setting aside their mercantile, economic or domestic uses, there are many other reasons why we should encourage their presence, which add so much to our health and comfort in making the world more beautiful wherever they grow. Their æsthetic, sanitary and humanizing influence around our domiciles, are undoubtedly many, as every day's experience proves.

The recorded associations of great men and trees are numerous, and their authentic history often reads more like the pages of romance than of fact. But the writer's intentions are not to dilate upon the many interesting narratives, legends, reminiscences, or traditions, our ancestors give of past events, connected with memorable men and trees, otherwise than a brief allusion to Dr. Johnson and his willow.

While on a tour in England, during the past summer, I paid a visit to "the ancient and respectable city of Lichfield," as an observant old writer designates it. From the noted house in Saint Mary's Street (the lower part of which is used as a draper's shop), where the celebrated Dr. Johnson was born, is but a short distance to a very remarkable edifice, in Saint John's Street, on which Henry II. settled a valuable revenue for its maintenance. And Edward VI. also further endowed it. But it is most remarkable for having been the Alma Mater of Addison, Wollaston, Ashmore and Dr. Johnson—men of mighty minds.

After viewing the many archaic specimens of architecture about the city, and feeling a strong predilection for all things Johnsonian, I made my way to the magnificent Cathedral, the origin of which dates back to A. D., 675. In the south transept of the sacred fane, placed side by side, are two conspicuous monuments, erected to the memory of those famous men, David Garrick and Dr. Johnson.

On a large mural tablet, surmounted by a marble bust of the Doctor, is the following inscription: "The friends of Samuel Johnson, LL. D., a native of Lichfield, erected this monument, as a token of respect for a man of extensive learning, a distinguished moral writer, and a sincere Christian. He died the 13th of December, 1784; aged 75 years."

Deeply impressed with the solemn grandeur of the superb structure, and the many mementos of former greatness around me, I thoughtfully passed along the richly fretted silent aisles, to the green yard outside. And not far from the gateway, void of all sepulchral pomp or sculptured ostentation, beneath a mass of pretty flowers, calmly lay the mortal remains of one of the most remarkable, exemplary and useful men of his time, the late Bishop Selwyn.

Pursuing my way to the adjacent fields, along the same hedgerow foot-path the Doctor had often trod, the spot was soon reached where "the great Lexicographer" used to rest beneath the peaceful shade of a venerable willow, *Salix Russelliana*.

The original noted tree known as Johnson's Willow, in 1810, measured in circumference 21 feet at six feet from the ground. But as trees and men only bide their time in our mundane world, so it was with both the Doctor and his favorite tree; they each succumbed to the fell destroyer, and ceased to be.

The writer well remembers his father pointing to the decayed old tree, when prostrated by a storm in 1829. And much regretted, thus ended the life of a veritable arboreal magnate among willows—as much so as was the erudite Dr. Johnson among his fellow-men.

After the ancient ligneous denizen had passed away, a thrifty branch raised from the old tree was, with much ceremony, planted in the same place, and to this day successfully grows in its stead.

About a quarter of a mile off, and in full view of the tree, stands the old Church (and close by the holy (?) well) of Saint Chad's, founded twelve hundred years ago. And near the ancient pile, standing on a slight eminence, embowered in lovely unbrageous trees and shrubs, is the commodious and comfortable old mansion of Stow Hall, once the residence of the renowned Molly Aston, whom the Doctor always called upon whenever he returned to his native city.

At the time of my visit, Willow II. was in a flourishing condition, and promises well for the future. Running a tape-line around its handsome bole, its girth measured twelve feet seven inches, at four feet from the base. The height was about eighty feet, and a more perfectly formed or better balanced tree is seldom seen.

In conclusion, I have only to say the citizens of Lichfield take great pride in protecting and showing the handsome successor they hopefully planted in 1830, for its honored sire's sake.

EDITORIAL NOTES.

HORTICULTURAL HALL, PHILADELPHIA.—This beautiful building, destroyed through proximity to a burning church, a year or so ago, has been rebuilt by W. L. Schaffer, President of the Pennsylvania Horticultural Society, and was reopened on the 5th of January. It is 200 feet deep by 75 feet wide. The main hall for exhibitions is 140 feet long, 70 feet wide, and 30 feet high. As a measure of safety to a large audience in case of fire, there are seven doors leading from the building.

A grand concert was given in order to test its audiphonic powers, and it was pronounced a complete success. Horticultural Hall was, with all its supposed faults, an almost indispensable building to Philadelphians, and one of which they were always proud, and the congratulations to the President of the Horticultural Society, in

the re-erection of the beautiful building were on the re-opening numerous and sincere.

HIGH-TONED PAPERS.—The publisher once in a while drops into the Editor's box items he thinks may be of interest to his department, and among others he finds just now the following from "W. H. O.," Geneseo, N. Y., "Please discontinue the GARDENER'S MONTHLY. It is a splendid magazine, but too high-toned for an ordinary cultivator."

At the end of every year, every periodical has some discontinuances among many new accessions; but it is not often that there is a discontinuance for fear the subscriber will learn too much. The Colorado friend, referred to in our last, would not subscribe because papers like ours are "not high-toned enough,"—written by novices who did not know enough for him. We should be glad to please all parties certainly, but amid so many contradictory desires, it is safest to assume that most persons are striving to learn more than they already know, and that there is no reason why even an "ordinary" cultivator should rank below his neighbors in ordinary intelligence. The true aim of the GARDENER'S MONTHLY is rather to elevate the horticulturist, and it is a real pleasure to us to find wherever we meet one who really loves his garden, that he or she is generally one who, for intelligence, is ranked far above the average.

THE UNCERTAINTIES OF EXPOSITIONS.—The Emperor of Germany offered a premium of \$3,500, at the great Exposition at Sydney, for that exposition of an industry that should be likely to prove most valuable to Australia. After all we have heard of Australian wool, Australian meat, Australian wheat, and Australian minerals, it is a surprise to find the premium awarded to the wine makers! After all, it will no doubt please the Emperor to know that the immigrant from the Rhine carried away his premium in that distant land. There is this fitness in the result of the award of the jury, although the Australians themselves seem by no means satisfied with the award, from other considerations. They contend that juries are "uncertain," as some of our fellow-citizens have it.

MASDEVALLAS.—Mr. Falconer informs us that the magnificent Masdevallas at Albany, of which he wrote, were grown by Mr. Tweddle.

COL. M. P. WILDER.—Our readers will be glad to learn that the health of our venerable friend

continues excellent. He took a prominent part in the Centennial exercises of the Honorable Artillery Company recently, himself the oldest of all living members, on which occasion he made one of his usual speeches of masterly eloquence.

THE "AMERICAN NATURALIST."—The December Number closes the 15th volume of this admirable monthly magazine. It is one of those able scientific serials of which Americans may well be proud. A marked feature is the employment of specialists for separate departments. Entomology is edited by Prof. Riley; Botany by Prof. Bessey; Microscopy by Dr. R. H. Ward; Geography by Ellis Yarnall; Anthropology by Otis Mason, and next year a new department, Mineralogy, will be under the charge of Prof. Carvill Lewis, one of the ablest of the rising generation of scientists.

It is published, at \$4 a year, by McCalla & Stavelly, Philadelphia.

THE AMERICAN FARMER.—This, one of the oldest and best known of American agricultural monthlies, has changed from the ordinary magazine form, and appears among the folio sizes. With this change of form it will also appear twice a month by its old publisher and editor, S. Sands, Jr., Baltimore, Md.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY FOR 1881.—Received from Secretary, Robert Manning.—Since the celebrated T. A. Knight and his contemporaries made, by their contributions to the Transactions of the Horticultural Society of London, a work of reference valuable for all time, we know of nothing approaching that series in excellence so nearly as this. It is really worth being a member of the Massachusetts Horticultural Society, though one lives hundred of miles from the place of meeting and never sees the exhibitions, even if they get nothing more for the annual subscriptions than these volumes. A society with a secretary like Mr. Manning is particularly blessed.

BACTERIA,—the smallest of living organisms, by Frederick Cohn, translated by Charles S. Dolley, Rochester, N. Y.

BACTERIA,—their relations to plant culture, by Thomas Taylor, Washington, D. C.

These two pamphlets are very timely in view of the recent discoveries of Prof. Burrill, in connection with "Fire-Blight" in the Pear and the Yellows in the Peach. As our readers know Bacterium is the smallest of all vegetable organ-

isms. They are always present in ferments and putrefactions; and they abound in the circulatory vessels of human beings, and animals suffering from epidemic and contagious disorders. Prof. Burrill found them in great quantity in the early stages of the Pear and Peach diseases, and matter taken from a diseased part induced disease in healthy places, yet none of Cohn's experiments prove that Bacteria ever interfere with life. Their mission seems to be to rot up rapidly organisms from which life has departed. They are the scavengers of nature.

Yet it has to be explained why they are in such immense numbers in sick people, and why the virus in which they abound carry the diseases to the Pear and Peach tree. We have no doubt these seeming 'contradictions will yet be reconciled. It will not do to say the observations contradict each other, and so both cannot be true. There is no doubt of the correctness of the observations on both sides, and it will be the province of future researches to reconcile them.

ART MUSEUMS AND THEIR USES.—By Dalton Dorr, Secretary of the Pennsylvania Museum and School of Industrial Art.

This is an appeal for an effort in the direction of higher art education, and the establishment of industrial education. The interesting facts gathered together in this pamphlet must be of great value to all who desire to study these great questions. But the weak point of the treatise is in its lack of any feasible plan of operations. There is the usual vague suggestions, about the State's duty, and municipal duty, and the duty of citizens, and the very common recommendation with every thing under the sun that "it be introduced into the public schools." The fact is no one disputes the needs or advantages of industrial education. The real question is, what is the best method of introducing it? And it is the misfortune of this as of all good subjects that they are ruined by the introduction of crude and ill-digested plans. For instance, the State of Pennsylvania gave in 1873, \$1,500,000 to erect a hall in Fairmount Park as an industrial museum, but not one dollar to sustain it afterwards. The present prospects are that the hall will be closed before many more years elapse.

In like manner those who clamor for the introduction of such teaching in the public schools have no practical knowledge of school management. There are but about five school hours, and already in the primaries and secondaries of

Philadelphia there are about ten different branches of study, or only about a half hour to each. It is no uncommon circumstance as the writer of this knows from actual experience as a director of the public schools of Philadelphia, that children pass through all the grades of the primaries and reach the highest in the secondaries, with but a crude knowledge of the three studies of most general importance. The great portion of children want to leave school when they reach the highest grade in the secondaries, and this want should be encouraged by those who desire to see their children thrive by manual labor; but under the present plan of teaching a little of everything, and nothing thoroughly, it is necessary for a child to go through grammar or high schools, and reach the age of eighteen or nineteen perhaps, before he has a thorough knowledge of language or figures, and by which time he has lost all taste for that "industrial" life which is to get him a living by the use of his hands.

These practical questions seldom occur to authors of theoretical works like this before us.

SHELDON'S DAIRY FARMING.—Published by Cassel, Petter, Galpin & Co., New York. Part twenty-five of this beautifully illustrated subscription work is on our table, and which completes the work. The colored plate represents an Alpine Dairy Station, and the text refers to dairy commerce.

THE FLOWER.

Once in a golden hour
I cast to earth a seed,
Up there came a flower,
The people said, a weed.

To and fro they went
Through my garden-bower,
And, muttering discontent,
Cursed me and my flower.

Then it grew so tall
It wore a crown of light,
But thieves from o'er the wall
Stole the seed by night.

Sowed it far and wide,
By every town and tower,
Till all the people cried:
"Splendid is the flower."

Read my little fable,
He that runs may read;
Most can raise the flowers now,
For all have got the seed.

And some are pretty enough,
And some are poor indeed;
And now again the people
Call it but a weed.

—Tennyson.

LINES ON A HEAD OF CABBAGE.—The best poets are often familiar with numerous branches of science; on the other hand men devoted to science are not unfrequently gifted with the poet's fire. Prof. T. C. Porter, the distinguished botanist, was known as the "plant-presser" in his earliest years. The following lines, quoted from *Lafayette College Journal*, written when but seventeen years old, shows a love for the Muses quite as worthy of recognition as was his other love:

Let frog-devouring France and beef-fed Bull
Disdain thee, Cabbage, when their mouths are full;
Let lazy Neapolitan discard,
Who eats his macaroni by the yard;
And Chinese gourmand think that dish the best
Which savors of the swallow's gluey nest;
Or, brought from distant ocean-isles, prefer
The relish of the costly biche-de-mer;
Let Abyssinian cut the quivering flesh
From the live heifer and devour it fresh,
While Alpine monk esteems the slimy snail
Above the juice of broccoli or kale;
Let Paddy whistle at the very thought
Of new *paratees* boiling in the pot,
And Yankee tell, with rapture in his eye,
The varied virtues of the pumpkin pie—
But, as for me, sprung of Teutonic blood,
Give me the cabbage as the choicest food.

O far-famed Sauer Kraut! compared with thee,
All dainties rifled from the land and sea
Were heaps of trash, and viands on the boards
Of prodigal Lucullus, or the hoards
Of which renowned Apicius choiced, boast,
Detestably insipid—and the host
That followed Epicurus, at the best,
Mere common swine, unpampered and unblest.*

Had but the gods on high Olympus' brow
Caught thy rich odor wafted from below,
Loathing as bitter their celestial bread,
They all in haste to Germany had fled.

What gave the fierce Barbarian strength to wield
His ponderous weapon on the battle-field,
When from the North his brawny right arm hurled
A bolt of vengeance o'er the Roman world?
Thy hidden power, O matchless Cabbage, thine,
Dweller upon the Danube and the Rhine.

Ye vain philosophers of titled worth,
Go to this lowly denizen of earth,
And read a lesson from his furrowed leaves;
Their words are truth; that volume ne'er deceives.
Castles and monuments have passed away,
Pillars and temples crumbled to decay,
Leaving no trace behind them to proclaim
To after ages their possessor's fame,
While on his brow unfaded yet appears
The wrinkled wisdom of six thousand years.

I love thine honest countenance, old friend;
My earliest memories with thy history blend,

And Hallow Eve, free to the wile and plot
Of boyish cunning, cannot be forgot;
The ringing shout, the merry laugh and cheer,
Still and will ever linger in mine ear.

May never he who slanders thy good name
Have his recorded on the scroll of fame!
May he ne'er taste thee, whose proud looks despise,
But Time increase thine honor as he flies!

SCRAPS AND QUERIES.

PAW-PAW, MICHIGAN.—E. A. Dodge says: "In relation to 'Paw-paw,' Michigan, I can say it was named after the Papaw fruit which I have seen growing there very luxuriously. Why it came to be spelled Paw-paw I cannot tell."

"OZONE" FOR CURING MEAT.—R. B. Warder writes; "And has it come to this that even so high-toned a journal as the *GARDENER'S MONTHLY* lends its aid to the popular delusion that sulphurous acid gas 'is simply and purely ozone, as produced and applied by an entirely new process?' The real character of the 'ozone' advertised so widely was described in the *Cincinnati Commercial and Gazette* of the 23d inst. I may send you a copy."

[The editor is not responsible for what appears in the advertising columns. Even if he had been, he should probably have been no wiser than the publisher; for he has to confess that he did not know that the material offered was simply sulphurous acid disguised, until this note of Professor Warder directed his attention to the proceedings of the Cincinnati Academy of Sciences. There certainly is nothing on the face of the advertisement to indicate any more fraud than in the average of "patent" stuff, which we are sorry to say, high-toned papers must advertise, so long as thousands of high-toned people are willing to use and want to buy. High-toned papers only advertise what they are convinced high-toned people want to get. Professor Warder and the Academy of Sciences deserve public thanks for their services in this matter. The reading columns of the *GARDENER'S MONTHLY* are always open to this good work, whether the vile stuff happens to sneak into the advertising columns of this paper or not. Publishers are but fallible men, and are liable to be imposed upon as well as any other member of the community.—Ed. G. M.]

*Me pinguem et nitidum bene curata cute vides,
Epicuri de grege porcum. Hor. Ep. 1-4: 16.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

MARCH, 1882.

Number 279.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There is no doubt the fashion now common of clipping evergreens till they look like the little mossy toys children play with, is an abomination not to be tolerated in tasteful grounds. But it is not wise to abhor all trimmed trees. It is the fate of all good reforms to be run to extremes. The taste for the natural in gardening is one of these good reforms exaggerated. We do indeed often meet with wild spots that are charming. A huge pile of rocks, with ferns and mosses springing from any nook or cranny that will catch a little soil, shaded by trees, and these again draped and festooned by hanging vines; or it may be clump of wild bushes on mossy banks, alongside of which gurgling streams or babbling brooks pursue their everlasting way—all these and other lovely snatches of nature's art in landscape adornment, are always to be admired—but garden art is another matter. It is not only that we wish to get perfect specimens of natural beauty; we wish further to show that we can make nature do more than she would; we love to make her bend to our whims and fancies, and then garden art will ever be more than mere nature can give us. There is beauty in a wild meadow with its buttercups and daisies, and the tall grass bending before the breeze like the

ocean waves; but no less beautiful is the closely shaven lawn. The hedge, beautiful as the wild, wayward plant might have been in some lonely and neglected spot, is no less beautiful under the artistic shears of the hedge trimmer. In like manner there should be no objection to trimmed trees, when there is evidently an ideal of beauty underlying the gardener's art. Mere resemblances to beasts or buildings without any other meaning are usually failures. Trees clipped into fancies, without any ideal beyond an effort at resemblance, caused the reaction against all clipping. But what is there against an arbor formed by the drawing together of the tops of half a dozen Linden or Osage Orange trees, and then to have windows or doors cut as they may be desired through the leafy mass? Why may we not have clipped archways over gates, clipped avenues, clipped screens, and even clipped trees when they are trained to shapes in keeping with some of the surroundings? There seems no more reasonable objection to clipping trees and shrubs judiciously as a genuine part of good garden taste, than to clipping our hair, and it is to be hoped that there will be more of it seen in good garden work than there has been. All this is suggested by the fact that spring is the best time for trimming evergreen hedges and other plants that it is at all desirable to trim. Trimming should be left till all danger of cold

winds are gone, but the sooner before the young growth is made the better.

Ornamental hedges judiciously introduced into a small place, add greatly to its interest. No easier method offers whereby to make two acres of garden out of one in the surveyor's draught. The *Arbor-vitæ* (Chinese and American), Hemlock, Holly, Beech, Hornbeam, *Pyrus japonica*, Privet and Buckthorn may be applied to this purpose.

Shrubs are not nearly enough employed in planting small places. By a judicious selection a place may be had in a blooming state all the year; and they, besides, give it a greater interest by their variety, than is obtained by the too frequent error of filling it up with but two or three forest trees of gigantic growth. Plant thickly at first, to give the place a finished appearance, and thin out as they grow older. Masses of shrubs have a fine effect on a small place. The center of such masses should be filled with evergreen shrubs, to prevent a naked appearance in the winter season.

Herbaceous plants do badly if several years in one place. Every second year, at this season, take up and divide them. Sow as soon as possible some hardy annuals. The earlier they are in the ground after the frost leaves it, the finer they bloom.

This is the proper season to lay down box-edgings. To make them properly, the soil along the line of the edge should be first dug, and then trod very hard and firm, so that it may sink evenly together, or the line will present ugly-looking undulations in time. Rooted plants should be employed; cuttings are sometimes used, but frequently die out in patches; a good edge can rarely be made from them. The plants should be set pretty low down, leaving the plants, when set, one or two inches above the soil, according to their stockiness. Sometimes box-edgings are laid around beds formed in grass. When so, a few inches of clear ground should be kept clean between the grass and the box, or the weeds will be so intermixed with the box, after awhile, as to render it a nuisance.

Walks should now have their spring-dressing—the verges cut, and a thin coating of new gravel laid on. Before putting on the new, harrow up the face of the old gravel with a strong iron-toothed rake. Roll well after the new is laid on.

This is particularly the month to pay attention the hardy annuals. The sooner they are

sown, the finer they will flower; that is, provided they are really hardy. Tender annuals, such as *Globe amaranthus*, *Balsams*, &c., rot if they are sown before the weather becomes quite warm. The seedsmen's catalogues usually distinguish these classes for their customers. In sowing annuals, the soil should be slightly stirred with a broad-bladed knife or trowel; and after the seeds are sown, they should have a little soil sprinkled over them, about one-sixth of an inch deep, according to the size of the seeds; barely enough to cover is all that is required. Failures usually arise from the seeds being buried too deeply. Failures also frequently occur from the soil with which the seeds are covered being too stiff or clayey, "baking" after a rain. Light sandy earth or decayed vegetable loam from the woods should be employed for the purpose. Stick a peg in where the seeds are sown, so that when turning out the plants in May from pots, the annuals will not be disturbed. Also take care to preserve the names of the kinds. This is a great part of the interest in flower-garden.

COMMUNICATIONS.

MR. HUNNEWELL'S GARDEN AT WELLESLEY.

BY WM. FALCONER.

NO. III.

The Italian Garden, of which an excellent illustration appeared in *Harper's Monthly*, p. 517, March, 1881, lies between the mansion and the Waban lake, and consists of a series of terraces, whereon are growing many trees clipped into curious and abnormal forms. It is the most extensive and pertinent garden of the kind in America. The clipped trees consist of White pine, Norway spruce, Hemlock spruce, *Arbor-vitæ*, *Retinosporas* as *squarrosa*, *obtusata* and *pisifera*, American beeches and European larches. And here and there upon the banks are spread thick mats of such Junipers as *tamaricifolia* and *squamata*. Mr. Harris tells me that, although these Junipers do so well on this northern exposure, in other portions of the garden facing south, they do not thrive.

The Arboretum is well stocked with many rare and handsome trees, particularly evergreens, as pines and spruces, junipers and *retinosporas*. The pinetum is on mostly sloping ground, and includes fifteen to twenty years' old specimens of many subjects that are yet novelties in our

gardens. There are some exceptionally fine specimens of *Abies Nordmanniana*, *Engelmanni*, *alcoquiana*, *orientalis*, *pichta*, *grandis*, *excelsa* *inverta*, *Douglassi*, *nobilis*, and others. The golden variegated form of the white spruce is a pretty tree, and one of the finest specimens and bluest varieties of the Colorado blue spruce, is conspicuous on the slope. But the trees and shrubs are too many for detail. There is an extensive collection of Japanese maples. Preparatory to planting trees, holes some eleven feet in diameter are dug out and filled in with good soil, and in after years dressings of manure are freely given to petted plants. For trees, Mr. Harris strongly recommends good soil to start in, when they are up a little they will take care of themselves, and plenty of manure for evergreens. And, considering the condition of these trees, and the dry gravelly soil of the land, his treatment deserves recognition.

Fruit growing under glass is an important feature here; but at the time of my visit, in November, beyond some grapes still clinging to the vines, and figs swelling and ripening on the bushes, all was cool and leafless, and inactive. For general purposes, Mr. Harris considers the Black Hamburg and Muscat of Alexandria as the best of grapes. His favorite peaches are Early Rivers, Early Beatrice, Hale's Early, Foster's Seedling, George the Fourth, and late Admirable; nectarines, Lord Napier and Stanwick; apricots, Moorpark, Brussels, St. Ambrose, Breda and Peach; plums, Angelina Burdett, Jefferson and Standard of England; and Brown Turkey as a fig. The Castle Kennedy and some other figs grow too much.

A BLUE FLOWERING BEDDING PLANT.

BY MANSFIELD MILTON, YOUNGSTOWN, O.

In the GARDENER'S MONTHLY, just at hand, you ask if there is anything better than lobelia for a blue bedding plant. There is. The dwarf blue *Ageratums* are far ahead of it for free flowering during the hot weather. I have three varieties of *ageratums*, any of which are very suitable for forming ribbon lines with *achyranthus* and *centaurea*. One, named J. Douglas, will do well if planted between the *achyranthus* and *centaurea*. Another I have under the name of Countess of Stair is a much dwarfier, but of as free blooming habit, as the one mentioned; the most suitable place for it is in front of the *centaurea*.

These *ageratums* are so much ahead of the old late-growing kind, which does not flower until late in the fall, in the flowering qualities, and dwarfness of habit, that it gives them much more value as bedding plants. They begin to flower just as soon as set out; in fact they are never out of bloom from the time they leave the cutting bench until the frost catches them in the fall. It is difficult getting cuttings off them free of flower buds.

The lobelia does well in a partially shaded position, or when it is newly set out; but when the dry, hot weather sets in it quits flowering, and does not make a very attractive plant again until late in the fall, when it begins to flower, and continues until frost. I tested last summer in several positions the *ageratum* and lobelia, alongside of each other, but the *ageratum* in every position was far ahead of the lobelia.

ACERATUM.

BY MRS. H. E. WHITE, BRYAN, BRAZOS CO., TEXAS.

There are two varieties of *Ageratum* that I have found growing in the river bottom, near me, and on the Post Oak hills, beyond the river. The variety growing in the bottom is sometimes two-feet high, and the fringe-like blooms are pale blue, fading to white. The roots are perennial, and if killed by frost put up again whenever we have a week or two of warm weather. It is a vigorous grower. The *ageratum* of the sandy "Post Oak" land is low and bushy in growth, like the dwarf *ageratum* of floral catalogues; the color is a lovely purplish blue. I planted one in a pot, and the root threw out white, succulent shoots, underground, that growing near the surface put up leaves that grew into bushes, and it spreads thus somewhat like a verbenia. The pot looked as if little seed plants were coming up all over it, when really they are root plants. I think this variety a valuable acquisition as a bedding plant. Indigenous plants stand the variations, the heat and dryness of our climate, much better than imported plants.

FLORIST FLOWERS.

BY A. VEITCH, NEW HAVEN, CONN.

Those who take an interest in the improvement, as they believe, of florist flowers are now receiving little encouragement from a class of writers in English journals, some of which claim that better results would have been ob-

tained had as much attention been bestowed upon single as has been upon double varieties. And others, again, regard wild flowers with greater favor than they do garden varieties; thus raising an issue without cause, as each class in its own place is worthy of all esteem.

Florists need have no contention with those who prefer flowers in their natural state to cultivated varieties, and many of them look upon all natural productions with as much interest as do those who protest against the changes which have been wrought on many by their hands. The clear-sighted among them can see two fields wherein to exercise their faculties, the one wide as the flora of the globe, the other an enclosure wherein are gathered the choicest specimens, and such as are best adapted for use and show. In this limited field the mind is less liable to be distracted by a multiplicity of objects than in the other, and is therefore at greater liberty to concentrate its energies upon a few chosen specimens with which to experiment and cultivate up to ideal perfection. In so doing no violence is done to nature, for "The art itself is nature," and as they find her so far yielding to their wishes as to permit changes which, although not conducive in every case to the good of the individual, adds so much the more to their own and to others enjoyment as to entitle them to a place among public benefactors.

A similar course has been pursued in the improvement of vegetables. While we know not with what esteem *Brassica oleracea* and *campestris* were held by primitive man, we do know that those products would make a poor display now, in the garden or on the farm, in their normal state. But since they have "grown great in bulk and succulent of leaf," by cultivation, *Rutabagas* and *Drumhead* cabbage are justly held in high esteem. So it has been with the *dahlia* and the *rose*. In their natural state both are interesting and attractive; but he who would prefer them in this state to the double forms now so common, and which add so much to the beauty and attraction of modern gardens, must have a poor conception indeed of elegance with grandeur combined.

And yet, because of their unassuming elegance and grace, a single wild *rose* may make a deeper impression upon the mind than could be produced by any one with a fuller compliment of petals. Objects of this nature address themselves directly to the finer feelings of mankind, and excite a sympathy which is ever responsive to

the calls, or seeming calls of every thing that is tender and beautiful. Such were the feelings of Robert Burns, when, on that farm of his, he turned a daisy under the sod to bloom in his verse for evermore. Wordsworth, too, was under the same inspiration when he said:

"To me the meaneſt flower that blows can give
Thoughts that too often lie too deep for tears."

This, in part, might be regarded as the sentimental love of flowers, and is strongest in minds of deep reflection and poetic taste; it stoops not to commercial valuations, but is fully occupied with that beauty in flowers which addresses itself alike to the imagination and the judgment.

But the florist must be true to his calling, which is not so much to hold to the sentimental and severely simple as to make use of every flower at his disposal which may aid in making his flower beds and greenhouses showy and attractive. And few will dispute that garden varieties, in their rounded fullness, are better adapted for this purpose than their representatives in a natural state.

But double varieties are especially obnoxious to a class of writers who claim that the highest types of beauty are to be found amongst those that are single, which claim may be true; but it is also true that very high types of beauty are to be found amongst double sorts, such as the *Marechal Niel* rose and double white *Camellia* fully attest. In setting forth the superior claim of single varieties it has been asked, "Why are the primrose, the wild daisy, or the buttercup so much admired, and the dandelion held in contempt? It is gaudy, it is inelegant, it is a wisp of petals, hence it is a failure, a 'hissing and a by-word,' and—and a model for florists." This is hard on the dandelion and the florist; but, had the writer studied more closely the elements of floral beauty, he would not have so estimated the dandelion, and also have given due credit to the florist, for selecting such a flower for his model. At the same time, the statement is what might be expected from one who believes that the highest beauty consists of simplicity and elegance, combined with delicacy of color. A statement by no means complete, and no statement of principles can be complete which does not give due prominence to form, congruity, or harmony and smoothness, as well as delicacy of color. And, moreover, we do not see how simplicity can be regarded as an element of floral beauty, but rather as the outgrowth and se-

quence of a happy combination of such elements as have been named. If this is not so, a blow is struck at all ornamentation, and by the same token a flail is more worthy of admiration and esteem than a threshing machine, or a phial three parts filled with water suspended by a cord attached to the bottom, than an elaborately constructed barometer, with all modern improvements. But this will not be believed; neither can we believe that the beauty of a flower depends upon simplicity, but upon the harmonious blending of such elements as enter into its composition, no matter whether the petals be many or few, provided they are all perfectly formed, all harmoniously arranged, all delicately smooth, and of whatever color, clear and distinct, or when of different shades, these so disposed as to produce the most agreeable impressions.

I do not pretend to give a complete analysis of beauty in flowers, but only to draw attention to some of its principal constituents, and as every family has its own kind of ideal beauty, the criterion for one may not meet the case of another. This is equally applicable to the difference between double and single sorts of the same species. But if the petals of a single rose, for example, come up to the standard of utmost perfection, no difficulty can be felt in recognizing the importance of symmetry and proportion in those that are double. And yet, strange to say, the men who are loudest in their protestations against double flowers stand up in defence of semi-double ones, in the new strain of dahlias, which, if we may judge from wood-cuts, come nearer to being "wisps of petals" than the under-rated dandelion. But they say they are finely colored. Be it so; but color alone, however elegant, cannot make up for a deficiency of form, symmetry and proportion. And, we repeat, that these principles are of the utmost importance in all flowers either single or double. Without them, they may be gaudy, but they cannot satisfy the judgment which takes cognizance of order and congruity, as well as of color. As well say that a human countenance of fair color is beautiful, when the features are ill-formed, irregular and disproportioned, as that a flower, especially a double flower, is beautiful without these prerequisites. And perhaps it is not too much to say, that greater progress would have been made in floriculture had cultivators attended more strictly to the principles I have endeavored to set forth.

EDITORIAL NOTES.

ORNAMENTAL RHUBARB.—We have several times called attention to the great beauty of the large-leaved herbaceous plants, when set out as specimens on the lawn or worked in with shrubs or trees, even in massing. The common



RHEUM OFFICINALE.

garden rhubarb is rather coarse as an ornamental plant, though striking when in full flower; but there are some species not used as esculents, that have greater elements of beauty. Haage & Schmidt, of Erfurt, have introduced two that are particularly beautiful, and of which we give



RHEUM RIBES.

illustrations here. One, *Rheum officinale*, has an additional interest in this, that it is the species from which the medicinal rhubarb root is prepared. The *Rheum ribes* is so called probably from the resemblance of its panicle of fruit to bunches of currants or *Ribes*, is particu-

larly ornamental by reason of its leaves as well as flowers and fruit. The old *Acanthus* of the poets is another very pretty leaf plant for single specimens on lawns.

PILEA REPENS.—This is reported to be an excellent plant as a green base to flower beds. It has a moss-like habit.

ORNAMENTAL GRASSES.—Few have any conception of the immense demand for ornamental grasses. We have heard of one seedsman whose stock of seed of the feather grass (*Stipa pennata*) alone was this winter eight tons.

CRATÆGUS ARBORESCENS.—Dr. Engelmann, in a recent issue of the *Botanical Gazette*, says this is the largest N. American Hawthorn. It grows on the alluvial river bottoms below St. Louis. It makes a trunk often 28 inches in diameter. The red or orange-colored fruit persists all winter, long after all other kinds of Hawthorns have fallen.

ARNOLD ARBORETUM.—By the Annual Report of Director Sargent, we find that the city government of Boston has not yet provided for the joint occupancy of the Arboretum and the city, as recommended by the Park Commissioners, according to the plan given by the *GARDENER'S MONTHLY* last year. It is to be regretted, as it would make one of the most instructive and beautiful public grounds in America.

RARE TREES IN GERMANTOWN.—The death of Mr. Norton Johnson, of Germantown, Philadelphia, removes the last male representative of a family which has been closely identified with the fame of Philadelphia as a horticultural and botanical centre. One of the streets running through the estate is named Upsal Street, after the home of the great Swedish botanist, Linnaeus. One of the brothers, who died a few years ago, left all his property after the death of his wife, to the Academy of Natural Sciences of Philadelphia.

On these grounds is the famous Silver Fir of Europe, planted in the beginning of the present century, one of the first four introduced into the country by the Princes of Flushing, and which has been so often written about and pictured. It is one hundred feet high, but has been on the downward path for some years. The finest American Yew in the world is probably the one here. As generally known, it is rather a trailer than an erect grower as the European is. This plant makes a dense mass over fifty feet wide,

rising to about six feet in the centre. It forms a circular bush of rare beauty. It is also about one hundred years old.

The only living specimen of the great Sequoia, a mammoth tree of California, that probably exists in the Atlantic States, is here. Under our suns the lower branches die, and generally after a few years die upward so rapidly as to kill the tree. This specimen happens to be growing under the shade of some huge white pines, which have lost their lower branches; hence though the mammoth tree loses the greater number of the last year's side shoots, the growth of the disease is not rapid enough to kill all the same season, and hence there are enough to start the growth the next year. This sole representative of the California wonder is not therefore anything to boast of as a matter of beauty. Besides these, are some remarkably pretty *Cryptomeria japonica*s, which seem to be quite hardy after they have once been able to get a deep tap root. *Pinus excelsa* has also grown here to a very beautiful tree. In the garden borders are numerous rare herbaceous plants.

SCRAPS AND QUERIES.

HARDY CYPRIPEDIUMS.—"If any of the readers of the *MONTHLY* can give me any information concerning the treatment of *Cypripedium acaule*, *parviflorum*, *spectabilis*, and *pubescens*, I should be very thankful for it."—Q.

A FINE OHIO THORN.—L. B. Case, Dayton, O., writes: "In a former note to you I expressed a doubt of there being an evergreen thorn in this latitude; at least I never had seen one. It was never my good fortune even to see a tree retain its fruit plump and perfect until mid-winter. But to-day I saw a tree about fifteen feet high with about ten feet spread of branches growing in an open woods about two miles east of Xenia, Ohio, with its bright golden yellow fruit hanging on its branches in perfect condition. The leaves had entirely disappeared, but the fruit made the tree very attractive and ornamental."

WINTER FLOWERS IN TEXAS.—Mrs. S. E. Byers, Houston, Texas, under date of January 9th, writes: "I sent you a cigar-box containing a few roses with my card, from the out-door flower garden. I scarcely hoped that they would reach you before their leaves had fallen. The large white rose, Estelle Pradelle I esteem the most

constant bloomer, and best in my collection of three hundred varieties—over a dozen white roses. I have read with interest, from time to time in GARDENER'S MONTHLY items on roses, and often console myself with the thought that we can grow roses to perfection in Texas, in the open border.

This list is now in bloom in the garden; my garden is well protected by evergreens. Solfa-terre, with highly perfumed golden buds; Jean d'Arc, beautiful evergreen foliage, and white pointed buds—both Noisette roses. Banksia, gaudy with snow-white flowers and evergreen foliage, very hardy here, but blooms once, and that for about six weeks; Jacqueminot, Mad. Chas. Wood, Crown, and other Hybrids, besides a host of Tea Roses; while Devonensis, Mad. Damasin, Bourbon and Bengal Roses, all have their representatives. Of Perpetual, the rose Belle Allemande is certainly here never out of bloom, unless frosted, and soon rallies after a freeze. Bella is not much found here, unless it would be under glass, as it yields only flowers in the winter.

I have half a dozen Seedling Roses of my own

raising, that are very good, and may some day find admirers. One closely resembles Appolline, a very constant bloomer. I often wonder that our Southern amateurs do not experiment more with rose seeds. The plant I have bloomed when three months old, and only four inches high, so that anyone can see the color, and if double or single; still, they have to wait a year or more to get a strong plant from seed. It is important to pick off the buds in order to get strong growing plants. We know of a Marechal Niel Rose, grown by a Houstonian, Capt. T—, that occupies three hundred and twenty square feet, and bears thousands of roses. There are quite a number of fine M. Niels about town; this is the largest one known to me. It is eight years old.

[These flowers arrived in excellent condition, except that those roses which had partially opened when gathered, soon dropped their petals when taken from the bud. If gathered when not quite mature, a Philadelphian might have flowers from his farm in Southern Texas fresh on his table every day, at but a trifling expense.

—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

COELOGYNE CRISTATA.

BY MANSFIELD MILTON, YOUNGSTOWN, O.

All Coelogynes are beautiful—in fact, all flowers are beautiful—nature is not the author of anything ugly; but she appears to combine in some particular objects more attractions than in others; the subject of these remarks is one of them. Who can look at a flower of Coelgyne cristata and be an infidel?

The flowers are produced on drooping spikes proceeding from the base of the ball. They are of a beautiful white with a yellow blotch on the lips, and will last a long time in perfection.

It is an evergreen orchid, and succeeds best in a pot, with equal parts peat and moss. Give plenty of drainage, as during its season of growth it requires an abundant supply of water, withholding as the bulbs mature. Give but little water when

at rest, and keep in cool house, and by all means prevent from exciting into growth prematurely, as by doing so the flowering of the plant is often checked. Keep the leaves scrupulously clean, and encourage a good growth of bulbs and roots. Be careful to protect the latter from the depredations of woodlice, slugs, and other insects which are very fond of them. Keep a dry atmosphere during the time the flowers are open, as damp is apt to make them spot and decay soon.

CLERODENDRON.

BY CHARLES E. PARNELL, QUEENS, L. I., N. Y.

The showy Clerodendron (*C. speciosissimum*) forms a dwarf branching plant, growing from four to six feet in height with large cordate leaves and a furrowed almost square stem. It is also one of the most distinct and prettiest species, and produces its flowers in large terminal panicles on healthy and well

grown specimens from July until October. The flowers are of a vivid scarlet color, the single flowers being over an inch and a half in length, and as the large panicles are thrown up well above the foliage they render the plant remarkably attractive. The flowers last for a considerable time.

Propagation is effected by cuttings of the young wood, and if the young plants are repotted as often as necessary and liberally treated, they will form flowering plants in the course of a year.

It is a plant of easy culture, and in the mixed border is peculiarly attractive; when grown for this purpose it can be planted out in good rich soil about the tenth of May, or when all danger of frost is over. Water freely in dry weather, and on the approach of frost take the plants up carefully, pot them, and place in a greenhouse having a temperature of 50° or 55°. When they have ceased flowering the plants can be placed under the stage if the room is desired for other purposes. While in a dormant state give but little water.

If grown as a pot plant it must be given an abundance of room for its roots, good drainage, an abundant supply of water during its season of growth, and a compost of two-thirds well rotted sods and one-third manure well mixed. During the summer season plunge the pot in a sunny position, give it a watering of liquid manure water once a week, and it will produce its scarlet panicles in such beauty as to surprise all who are so fortunate as to behold it.

When the plant is grown in the greenhouse during the winter season it is unfortunately very subject to the scale, mealy bug and red spider, so that great care will be necessary to keep these pests in check.

CELOGYNE CRISTATA.

BY F. W. WOODWARD, EAU CLAIRE, WIS.

"G. C." asks in December number for a few notes on the culture of *Cœlogyne cristata*. This plant with me is one of the easiest of all orchids to grow and flower, now that its wants are understood. It will grow well either in pots or upon blocks with sphagnum moss. If in pots it grows very luxuriantly in moss alone, without the addition of peat which is an injury to any orchid in my opinion. At least orchids have never grown well for any length of time in a potting material of which peat formed a portion, even the pure Jersey article. While in moss some

large plants of *Cœlogyne* have been undisturbed for four years, and have now bulbs three inches long and very strong flower spikes. Good drainage is essential, as the plant after growth has fairly commenced, can hardly get too much water. My plants are set on benches covered with an inch of sand, and are watered thoroughly twice a day from the time the new growth shows until in September, when the flower spikes appear prominently from the base of the bulbs; then the supply of water is reduced somewhat as the plant goes gradually to rest, until now (December) the plants get a watering once a week if in pots and an occasional light syringing over the leaves besides. Those on blocks will require dipping about twice a week if there is considerable moss on the blocks, which there should be. The plants should never get entirely dry or the bulbs allowed to shrivel much. One plant in ten inch pan is now showing thirty flower spikes, (very strong) and ought to give one hundred and fifty flowers. Last year it had eighty-four flowers which lasted five weeks in bloom. Five plants were taken off last spring, each of which will bloom in February. The *Cœlogyne* is not particular as to temperature, though in warm houses it will bloom earlier. My little orchid house 14x14 is ventilated under the benches, with slight roof ventilation. The door and ventilators are generally kept open night and day in summer except in storms. The roof is whitewashed which gets off in October and is renewed in March. In this house are grown one hundred and fifty orchids all in the best of health, and some in flower at all times. The attention given is less than is required by a general collection of plants, and the results far more satisfactory.

GREENHOUSES HEATED BY STEAM.

BY AUGUST D. MYLIUS, FLORIST, DETROIT, MICH.

Mr. Fowler's article about steam-heating for greenhouses in December number, is in the right direction. It is throwing money away to pay two dollars for what can be bought for seventy-five cents. I saw how steam worked last winter in greenhouses, and I never saw healthier roses and plants of every description than those grown with its aid. I made up my mind then after noting how well everything did with steam, that I would not build another house without it. I took out hot water boiler and flues, and put a ten horse power boiler in to heat four houses, each twenty-two feet by sixty. Now to heat this

amount of glass well it takes two hot water boilers, double amount of pipe; besides, hot water pipe is four inch, where steam pipes are only one inch, except main pipe which is two inch, from this the one inch pipe gets its supply. The price for steam heating is, boiler \$200; pipes and fittings, \$400; or everything complete in working order for \$600; and if put up last year when iron was lower in price, perhaps it would not have cost \$500. For hot water it would have cost me at least \$1,500 or more, with less satisfaction. It takes less time to tend to fire, and less fuel. Mostly all florists here will use steam after this; they all see it is a success, and all are wondering why it was not used before this date for structures of this kind. Five or six florists here put in steam last summer, and others that possibly can will put it in next year.

CELOCYNE CRISTATA.

BY WALTER GRAY, COLLEGE HILL, CINCINNATI, O.

Kindly allow me a few words on the cultivation of the above in reply to "G. C.," p. 369. This plant will thrive well in any warm greenhouse, in pots, in a compost of rough peat and moss. The pots should be well drained, so as to let the water pass quickly through the compost. If it should require potting, it is best done when the plant begins to grow. It requires abundance of water in its growing season; in fact, should never be allowed to get dry. I have grown this plant beautifully upon blocks of wood; also, in baskets suspended from the roof near the glass.

EDITORIAL NOTES.

ROGIERA GRATISIMA.—A plant about two feet high, and about two feet thick, with scores of bunches of fragrant whitish flowers was exhibited by Alex. Young, gardener to Mr. R. S. Mason, at the January exhibition of the Germantown Horticultural Society, showing it to be an admirable kind for conservatory decoration at that season of the year.

STEAM HEATING.—There is little doubt that where there are large ranges of plant houses to be heated, steam is destined to play a much more important part in American gardening than it has yet done. There is no reason why it may not be employed in connection with the electric light and the warming of whole blocks

of houses by one steam-heating company in each block, and we pay for the steam we use as we pay for gas. This will be a great boon to the florist who may be near such a public steam company. Only think of the enjoyment of going to bed at nights without worrying over fires; no coal bills to pay, no dirt, no dust, no smoke, no trouble but to grow flowers or fruit, and turn these to pleasure and profit! Will it not be glorious?

LIBORNIA PENRHOSEANA.—A plant of this about two feet over, with literally thousands of flowers, was one of the gayest of the many pretty things exhibited at the January meeting of the Germantown Horticultural Society. It came from Mr. Gallagher, gardener to Amos R. Lytle, Esq.

CUT FLOWERS IN PARIS.—The chief flowers forced for cutting in winter, are *Hydrangea paniculata*, White Lilacs, Lantanas, Violets, Stockgillies, "Anthemis"—which our growers would perhaps translate to "Daisies"—Roses, Azaleas, New Holland Acacias, Epiphyllums, Tulips, Hyacinths, Narcissus, Chinese Primroses, Ericas, or Heaths, and "Muquets" or Lilies of the Valley. It seems strange that so very useful a plant as the *Myrsiphyllum*, or "Smilax," should not be known there in connection with cut flower work.

STEPHANOTIS FLORIBUNDA.—This waxy white, and sweet flower, would be extremely profitable to that florist who could discover how to get it in bloom cheaply and profusely all winter. It seldom flowers, however, before the winter and season for expensive flowers is almost over.

ACALYPHA MARGINATA.—These, so numerous as the species are, afford little of interest to the cultivator; but *Acalypha marginata*, as shown by Mr. Kinnier, at the January meeting of the Germantown Horticultural Society, shows this one to be as beautiful as the choicest coleus which the prettily-margined leaves very much suggested.

BUTTONHOLE BOUQUETS.—These are not as popular in our country for everyday use as they are in Europe, on account of the dryness of the atmosphere causing the flowers to wither very soon. But there are many flowers which might be selected of more enduring character. The double white *Bouvardia* seems one of this character.

CHRYSANTHEMUMS.—Referring to Mr. Walter Coles' article on the *Chrysanthemum*, it should

read that the Chrysanthemum should be planted on the south side of the house instead of the north.

CUT FLOWERS IN EASTERN CITIES.—Many of the plants used for cut flowers are grown in open ground during summer, and transplanted to the forcing-houses in the fall. The past season interfered very much with the summer growth of these plants, and hence they have not given the amount of flowers as usual. On the other hand, there seems to have been a more active demand, and hence prices have been very well sustained. General Jacqueminot Roses still bring the highest price of any rose. Cornelia Cook and Catherine Mermet are growing in popularity; though Bon silene, Saffrano, Isabella Sprunt, and Marshal Niel, are still the main dependence.

The best class of bouquets brought generally from \$10 to \$15 each. Bouvardias, Mignonette, Callas, Heliotrope, Carnations, are still the chief reliance of florists. Violets, Orchids, and other rare things are special fancies. There seems to be an increasing tendency to value some special novelty. Any florist who has courage enough to grow some really beautiful thing in large quantity and can get the use of some large firm to introduce it, can usually succeed.

RED BERRIES IN WINTER POT PLANTS.—Few plants are more desirable for pot plants in windows than *Ardisia crenulata*. The holly-like berries are really beautiful. *Cotoneaster Simondii* is equally beautiful, but not so well known.

NEW OR RARE PLANTS.

A DOUBLE DAHLIA.—There are already double Dahlias and single Dahlias so-called, but this doubling is simply the enlargement of the disc petals. A real double is now offered in England. The disc florets have smaller ones inside their little cups. It is called "Double floret Dahlia."

PRESIDENT GARFIELD ZONALE GERANIUM.—This is a new introduction in England. It is said to be a sport from *Vesuvius*, and to be of the color of Jean Sisley, with large white eye.

IMPROVED CHINESE PRIMROSES.—At the recent meeting of the Pennsylvania State Horticultural Society, Mr. Brennenman, florist of Harrisburg, had a fine collection of Chinese Primroses, of the

Rupp improvements. They are of many forms and shades of color, and a decided improvement on the old stock.

A WHITE HELIOTROPE.—A pure white Heliotrope, long desired, seems to have been at length produced, judging by the following from the *Journal of Horticulture*: "Fragrant flowers are general favorites, and any improvement upon those we already possess must be welcome to all. This Mr. H. Cannell has unquestionably provided in the new Heliotrope White Lady, which was shown in excellent condition at Kensington last week and awarded a first class certificate. The chief characteristics distinguishing it from other varieties of the well-known plant are the great size of the corymbs, the large individual flowers of which are quite white, and the fragrance is powerful even for Heliotrope. The habit, too, is compact, and the plant appears to be sturdy and floriferous in no mean degree."

STEAM HEATING.—Mrs. M. P. Green remarks: "None of the writers on steam heating of green-houses has told us definitely about their radiating surfaces. Do they use two inch, or larger, or smaller pipes as radiating surfaces, the whole length of the benches or houses, or do they use shorter 'coils' at separate distances after the manner of heating dwelling houses. One uses two inch and others use various other sizes of pipe, but we want more definite details about the radiators."

ASPARAGUS PLUMOSUS.—"J. R. G." St. Stephen's Ch. P. O., Va., writes: "Can the GARDENER'S MONTHLY tell me if *Asparagus plumosus* is hardy. From the beautiful print of it and the editorial endorsement I am anxious to get it."

[With no personal knowledge of the culture of this plant, the Editor can only say that from its native country and other associations, it ought to do well in a cool greenhouse.]

IXORA SPLENDIDA.—Among the most valuable flowering plants are those furnished by the order Rubiaceæ, of which the well known *Bouvardia* may be taken as a type. There are other genera closely allied, which are also very beautiful, such as *Pavetta*, *Rondeletia*, *Rogiera*, and *Ixora*, of which we give an illustration here. *Ixoras* are particularly showy, and in places where specimen plants are cared for, always find a favor. Like *Bouvardia* they require some heat to bloom well.

in winter. There are a great number of species scattered chiefly over the Islands of the Indian

vation. The species here illustrated, *I. splendida*, is one of these recent introductions for which the

IXORA SPLENDIDA.



Ocean, and new ones are being continually discovered or introduced for the first time to cultivation. The floral world is indebted to the enterprise of Mr. Wm. Bull, Chelsea, near London.

SCRAPS AND QUERIES.

ASPARAGUS PLUMOSUS.—Mrs. "R. B. E." says: "In the December MONTHLY inquiry is made about *Asparagus plumosus*, and whether it is in this country. John Saul, of Washington, and Hovey & Co., of Boston, advertised it in their catalogues for the spring of 1881. I have never seen it in growth, however, but if the illustration is correct, and its habit of growth satisfactory, it must be a very great acquisition."

[This illustrates a point we often make, when people write to magazines to know where they can get rare or interesting plants or fruits. The

editors of these magazines cannot always know these things; indeed such questions come rather under the head of business matters, and are more adapted to the advertising than the reading columns. But to the point referred to, which is, that the best way to get at these questions is to write to or send for the catalogues of the firms who may have eminence in these branches. If they have not the kinds ready, on application, they soon get them.—Ed. G. M.]

BEGONIA SCHMIDTII.—Messrs. Nanz & Neuner find *Begonia Schmidtii* a desirable acquisition. Besides good habits and foliage, it is a profuse bloomer.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The pruning knife often injures as much as it benefits, and hence arises two schools in gardening, namely, those who prune on all occasions, and those who prune not at all. As an instance of very bad pruning, we may go to many dwarf-pear grounds, and find them continually shortened in till the end is like that of the injudiciously pruned maple trees, along city streets, they die altogether, or present so poor an aspect that the owner concludes, not that he is a failure, but that dwarf pears are not worth growing. Much of the failure with the dwarf pear comes from bad pruning, though with the best of care there are few places where they succeed to such an extent as to warrant the extravagant encomiums showered on dwarf pear culture a quarter of a century ago. The dwarf pear delights more, perhaps, in the pruning knife than any other fruit tree, except the grape; but instead of shortening in the vigorous shoots, which are the life of the tree, and leaving the weak and half dead wood, it is this small trash that should be cut away. Then, again, we have to look at the questions of growth or fruitfulness. If a tree is already growing with great vigor pruning will only induce a more vigorous foliaceous growth, which is antagonistic to fruitfulness. And again, if not growing as vigorously as we desire, one

good pruning may remedy this. Pruning is a great art, and yet one which is soon understood, if we reflect on a few fundamental truths.

Grape-vines in the open air, on arbors and trellises, should have their pruning finished before warm Spring days set in, or they will bleed. It does not injure them much, but it looks bad. The pruning must be regulated by the condition of the vine. If the vines are young and the shoots weak, cut them all back, to make a new and vigorous growth. If already a fair quantity of strong shoots of last season's growth exists, cut out the weaker ones, so as to leave enough of stronger ones. The cane system, slightly modified, is best for arbors and trellises in the hands of amateurs generally. This implies a new set of canes every year or two. If, as frequently happens from bad management, all the young and strong-bearing wood exists only at the end of the vines,—and these latter have become nothing but long, ropy-looking apologies for what a vine should be—the whole cane may be buried down in the soil to where the strong shoots spring from, and the young wood of last season trained up from this. The plant will then recover its good appearance quite as well as by cutting down, with the advantage of not sacrificing a year's crop of fruit.

Pruning of most kinds of fruits has been accomplished through the winter. It is customary,

however, to leave the peach till towards spring, in order to cut out any wood that may be injured through the winter. In other respects, the peach should have little pruning at this season, as it tends only to make it grow more luxuriously; and a too free vigor of growth is a fault of the peach in this climate. The only pruning admissible is that which has for its object the production of shoots in naked or desirable places.

After a crop has been borne, however, pruning may be more severely practiced. We once heard a good fruit grower say that peaches seldom had the yellows till after they had borne one good crop, and that a good pruning the winter following the first bearing was a sure protection against the dire disease. How much there may be in this notion is not clear, but it is worth a thought.

In the vegetable garden we might give a hint in asparagus culture, that if very large stalks are desired, the soil must be very rich, and the plants set as wide apart as rows of corn. It is to be observed that those who believe there are some varieties of asparagus that may be reproduced from seed urge the necessity of planting very wide apart. We do not know that very large stalks are especially desirable, and for ordinary use would set the plants about twenty inches apart; about four inches beneath the surface is deep enough to set. Good deep soil is generally good; but if in a stiff soil, deepening it for asparagus, only makes a well into which the surrounding waters drain. It is much better in such situations to plant in raised beds. The alleys between them serve as surface ditches. Many failures in planting asparagus arise from this depth of bed, under such circumstances. The plants rot from water about them.

In vegetable garden culture, it must be remembered that we have to operate the reverse of fruit culture. A woody growth is what we require for fruit trees; but we need for vegetables a soft, spongy, succulent character, the very reverse of this. For this end the ground cannot be too deep, too rich, or too much cultivated. The hoe and the rake should be kept continually going, loosening the surface and admitting "air and light," as the old books used to say. There is not only an advantage in this for the direct benefit of the plant, but an early use of these tools keeps down the weeds, and thus we save labor. It is a great thing to be "forehanded" in the weed war.

COMMUNICATIONS.

PRUNING FRUIT TREES.

BY REV. L. J. TEMPLIN, HUTCHINSON, KANSAS.

It is doubtful whether there is any other subject connected with fruit raising upon which there is such a wide difference of opinion as that of pruning.

Two wide extremes are held by different men; some holding that pruning should be done at almost all times and with but little limit to the quantity. On the other hand, there are those who are opposed to pruning at any time and in any quantity.

The one argues that nature knows the needs of her own productions better than man, and if it were best for the growing tree for a considerable portion of its annual growth to be cut away, it would either not be produced, or it would fall away of its own accord. And this is what does take place in the case of forest trees; when the growth is too thick so that some of the branches do not receive a sufficient amount of light and air, such branches die and fall off. By this process of natural pruning the lower branches of the trees in the thick forest have been gradually removed till the trunks are entirely devoid of them for many feet. From this it is argued that if fruit trees be left to this natural process of pruning, they will be both more healthy and more fruitful. But would this follow as a consequence of this let-alone system? It appears to me there are very strong reasons for believing that it would not. It should be remembered that the conditions of the forest tree are wholly natural, while those of a fruit tree in the orchard are largely artificial. The forest trees are generally crowded so closely together that the sunlight and air are largely excluded from the lower branches, which being thus deprived of their natural stimulus, die and fall away. The fruit tree, on the other hand, is, or should be, planted out in an open space where it receives abundance of both light and air, so that so far from its being deprived of its surplus branches by natural pruning, the tendency is to grow thicker almost without limit. Again, the acerb and astringent fruits that are produced by the trees of nature's own planting and pruning, are hardly to be compared with the highly developed, luscious fruits of our cultivated orchards. It is doubtful whether even those who contend for leaving the pruning to nature would be satisfied with that

which is produced without the aid of artificial means. It has been my observation that orchards, even though composed of the better varieties of cultivated fruits, if permitted to go without any pruning, soon become so overgrown with useless, or, at least, surplus wood that the fruit, though abundant as to numbers, is very inferior as to quality. An excessive growth of wood is incompatible with the production of abundance of good-sized, high-flavored fruit.

For the development of fine flavor in fruit, it is essential that it be exposed to the rays of the sun while ripening. Fruit that is grown in the shade is always insipid compared with the same variety that has been freely exposed to air and sunlight. Some trees, if not kept somewhat in check by pruning, will run to wood to such a degree that but little of their vitality is left to produce fruit. Others with such an abundance of branches set such a large amount of fruit that none of it can reach much excellence. It is evident that a judicious amount of pruning will remove these evils by thinning out the surplus branches, thus concentrating the sap in a smaller number of branches and buds, causing a more vigorous development of the fruit. At the same time, this thinning out of branches admits the air and sunlight to all parts of the tree, causing a more perfect elaboration of the sap in the leaves, and of the juices of the fruit.

Assuming, then, that a certain amount of pruning is required for the fullest degree of excellence in the growth of fruit, I proceed to a brief description of the principles of pruning. And in this inquiry there are three things that present themselves as claiming attention and elaboration. First, the time when pruning should be done; second, what should be cut away in the operation; and, third, how pruning should be done. As to the first, much depends on the object sought by the operation.

There are various and apparently contradictory ends to be attained by pruning. We prune to reduce the vigor of trees; to increase the vigor of trees; to thicken the head of branches; to induce fruitfulness; to reduce the tendency to form fruit buds; to cause a more spreading growth; to induce a more upright growth, and various other purposes. From this it will appear that in order that pruning may accomplish the end desired, it is essential that it be performed under such conditions as will secure that particular object. It is evident that if it be not done with a correct understanding of the principles involved, a very

different result may be produced than the one intended. The difference in result depends very much on the season of the year and condition of the tree when the pruning is done. In order to understand the physiology of pruning it is necessary to have some knowledge of the principles of vegetable physiology. The fruit tree is a living being influenced by soil, climate, and especially the seasons of the year. The internal condition of a tree does not differ so materially as the outward manifestations at the different seasons of the year. No sooner has the leaf fallen in the autumn than the tree begins the process of accumulating a store of moisture charged with vegetable food for the use of the tree during the following growing season. This is evident from the fact, that if a tree be examined just after the fall of the leaf it will be found comparatively destitute of sap; but if the examination be made in the spring, the wood will be found full to repletion with the moisture that has been gradually accumulated during the winter. During this gradual increase of sap, there is a considerable amount of tree food carried up and deposited in various parts of the tree, near where it will be needed for the early growth of the season.

Of course the more branches and buds the tree has the more this plant food is divided, and the less relative effect is produced on each part. Now it is evident that if a portion of the branches be cut away early in the season, the remaining buds will receive a greater proportional amount of the nutriment accumulated afterwards. The result would be increased vigor in the growth of the remaining portions. If the desire is to increase the vigor of a tree, according to this theory, the pruning should be done as soon after the fall of the leaves as practicable. But if there is already sufficient vigor, pruning at this season will have a tendency to increase the number of branches, as the material laid up will cause adventitious buds to form which will produce numerous water sprouts that cause a thickening of the sprays that will increase the evil that was sought to be remedied by pruning. This explains why many persons complain that pruning only makes the matter worse.

If the desire is to reduce the vigor of a tree and thus cause it to form fruit buds and bear fruit, the pruning must be done at a time when the tree has expended the material for its season's growth; say about July or August. But a tree to endure much pruning at that season should be in great vigor, as severe pruning at that time

strikes at the life of the tree. Between these two extremes there is a season during which the vigor of the tree will be but little if at all affected. This is evidently the best time to prune for the purpose of simply removing surplus branches. My experience and observation have led me to believe that the best time to prune, if this be the purpose, is just at the time the tree is making its most vigorous growth of the season. This, in the Northern States, is during the latter part of May and fore part of June, varying with the latitude and the earliness of the season.

What to prune will be determined in part by the purpose for which the operation is performed. But it is evident that all branches that cross and chafe must be removed. With most trees the pruning should begin at the center and progress outward. The head of the tree should be kept open so that air and sunlight may have free access. If a tree is inclined to grow lop-sided the branches are to be pruned off and cut back till a proper balance is secured. All water sprouts and other branches that start where they are not needed should be removed at once. The better way is to rub or pinch them off with the fingers as soon as they have started.

If a tree is too upright in growth, it may be made more spreading by cutting the branches back uniformly to buds that point outward. If on the other hand, the growth is too spreading, the pruning is to be done to buds pointing upward or inward. But little remains to be said on how pruning is to be done. The common fault of leaving a stub where a branch has been removed is to be avoided. The branch should be cut off with a smooth cut just where the swelling at the base begins, so that the wound will be just the size of the large part of the branches. Large branches are to be removed with a fine saw, and the wound pared perfectly smooth with a sharp knife, and then covered with a coat of white lead or shellac dissolved in alcohol.

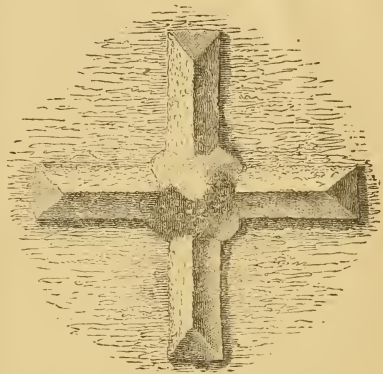
Pruning done with intelligence and skill is a blessing; but if done in ignorance and in a bungling manner it were better not done at all.

FIG CULTURE AT THE NORTH.

BY GEO. F. NEEDHAM, WASHINGTON, D. C.

In a note before me from Mr. Thos. D. Lloyd, Barrie, Ont., Canada, he is quite jubilant because he has ripened figs in the open air. I sincerely believe that we can grow better figs in our cli-

mate than they can at the South. A French savant has recently uttered a thought confirmatory of my position. "Tropical fruit grown in the temperate zone is greatly improved," or words to that effect. As an instance, Florida oranges are a hundred fold better than the same fruit grown in the West Indies. Certainly we can't be



worse off than the fig-growers of Georgia, who for two years have had their trees cut down by frost. In fact our trees being protected are alive and flourishing.

In France and Germany where the climate is often as cold in winter as in Canada, figs are extensively grown and mature in the open air. The branches are simply bent down and covered by earth during the winter. De Breuil gives the annexed illustration of a plant in which the branches have been arranged in the form of a cross before putting the earth on them.

CULTURE OF TEASEL.

BY J. MCLAUGHLIN, SKANEATELES, N. Y.

Our attention has been called to an article in the January number of the *GARDENER'S MONTHLY*, written by P. D. Barnhart, of Banksville, Pa., in the course of which he gives a reply to the question asked on page 280, as to whether any one knows where the Teasel is cultivated in the United States. We can give a more definite answer than your correspondent above mentioned, for what is a "pest" in his section, the farmers in this part of New York State have converted into a useful and valuable article of commerce, which brings them annually about half a million of dollars. The two towns of Marcellus and

Skaneateles in Onondaga County, produce all the teasels grown on this continent. They were first introduced here about fifty years ago, by the celebrated English pill doctor, John Snook. Having realized a large sum of money by the sale of his receipt for making his pills, he came to this country with the intention of raising teasels. He visited several different localities throughout the country, but could find no soil suitable to produce a perfect teasel, until he tried that of Skaneateles and Marcellus. His first attempts were successful, but such was the prejudice at that time against everything American, that he was obliged to sell his production as French growth, and it was not until about twenty years ago that the American teasel was admitted to be the best grown in the world.

The seed is sown about the beginning of May, and about one month afterwards is given its first hoeing. In another two weeks it is ready to thin out, which is done by hand, one plant being left every six inches in the row, and the rows three feet apart. In August the ground is again hoed for the last time in the first season. The second season we keep the horse cultivator at work pretty steadily for two weeks, and the plants that were formed from the seed the first year, throw up a main stalk the second year, and when about two feet high, a leaf makes its appearance, which gradually forms a cup around the stalk; from the base of this other branches arise, and these in turn repeat the process, until the plant has from forty to fifty stalks. On the end of each stalk is a teasel. The cups act as reservoirs, with a capacity of from three to five quarts of water, and thus keep the plant supplied from one rain-storm to another. The main stalk teasel is called the "King," and is the male part of the plant. It blossoms first, beginning at its apex and gradually going towards the base, and while this is in operation, it sheds a fine pollen over the other teasels, called queens, by which they are impregnated. They all blossom with a white flower, and as soon as this drops, they are fit to cut. When taken from the fields they are placed in drying sheds built for the purpose, and cured. When they are ready for market, they are bought by dealers, who take them into their factories, and prepare them for the woolen mills. The preparation consists in clipping off, by hand, the beard that grows at the base of the teasels cutting the stems to about three inches in length, sorting them into four different qualities, into eight different lengths, and

gauging them by machinery into thirty-six different diameters. The different lengths, diameters and qualities are packed systematically in separate boxes, measuring $3\frac{1}{2} \times 3\frac{1}{2} \times 5$ feet. There are seven different houses engaged in shipping, employing from twenty to fifty hands each, throughout the year, with trade extending from St. Jose, California, on the West, to St. Petersburg, Russia, on the East, including the Canadas and Mexico.

EDITORIAL NOTES.

SOWING SEEDS.—It requires much judgment to sow seeds properly. It is an art that cannot be completely taught, though a few hints may be given to put the learner on the track. We must first remember that it requires an effort to push the young growth through the earth, and that all efforts require food. The material in the seed feeds the young plant, and the greater the effort to get through the earth, the weaker it will be when it gets to the top. Many seedlings burn off, because they are too weak to live by the time they get to the surface.

Then we must remember that seeds must have some moisture, and an absence of light. The deduction from all this is that the seeds must be as shallow as possible in the ground, consistently with darkness and moisture. How just to do this must be determined by each sower. It is just here that the point so much insisted on by Peter Henderson is of so much value. By "firming" the earth about a seed, it may be sown much shallower, and yet meet with the necessary conditions of darkness and moisture.

COAL TAR.—At a recent meeting of the Montgomery Co., O., Society, Mr. H. C. Smith stated that pitch tar was found to be more dangerous than coal tar to keep insects from injuring the bark of trees. This is very important information, as the general belief has been the reverse.

HOTHOUSE GRAPES.—Few people have an idea of the vast strides which have been made in the skilful culture of the hothouse grape. The *Florist and Pomologist*, has recently placed on record the full notes made at the National Show of 1881, at Manchester, in England. The premiums for the heaviest bunch of grapes was awarded to Mr. Roberts, gardener to the Countess of Charleville. It was the variety Gros Guillaume, and weighed twenty pounds! He also exhibited

one bunch of Trebbiana, a white grape, which weighed twenty pounds, three ounces. The premiums ranged from \$100 to \$150.

PLUM, BASSETT.—The Bassett Plum is receiving encomiums at the West. Prof. Budd speaks well of its doings at Ames, Iowa, and doubts whether it is a variety of *Prunus maritima*. Stark & Co., of Louisiana, Missouri, have this to say of the relative value of the fruit for that section :

"A remarkably prolific variety. While it is not of first quality, it is good, and bears abundant crops and is practically proof against the curculio. Fruit small; deep crimson with a heavy bloom; sweet, rich, and pleasant. Ripens last of September and will bear shipment in perfect condition, almost any distance. The great value of this plum is for culinary uses—it has no equal for dessert—for which it is superior to the cranberry, as it requires very little sugar, and needs only a little cooking to prepare it for use."

RASPBERRIES IN THE NORTH.—The raspberry is a native of high northern or mountainous regions, and hence we read of success with kinds in the cooler portions of our country with varieties which, becoming enervated by climates they are not adapted to become the prey of the insects or diseases, and are then too tender to stand even a moderate winter. The editor of the *Canadian Horticulturist* gives a list of kinds which do well in that region. He commends Highland simply for its earliness, though the Turner, better in other respects, is nearly as early. It is a profuse suckerer, and must have the hoe kept going freely over the ground in the growing season. He thinks well of the Cuthbert, and regards the Niagara as a promising variety. The Caroline is a fair white kind. Philadelphia is valued for its enormous crops, but nothing more. Franconia and Clarke, with some faults, seem to be the favorites.

THE EARLIEST PEACH.—In some extended observations at Rochester the past season, Mr. W. C. Barry finds the Brigg's Red May ripe on July 24th, though he had splendid specimens of Alexander and Amsden on July 26th. Waterloo came in on the 27th. Beatrice was ripe on the 4th of August; Louise on the 7th; Rivers on the 10th; Leopold on the 15th; Rivers' Early York, 18th; Early Mignonne, 20th; Hale's Early August, 22nd.

Some years ago, when introducers claimed that their novelties would ripen ten days or two weeks before the Hale's Early, it was thought almost too good to be true; but we find here

that nearly a month has been gained, at least in the latitude of Rochester. This is certainly a great advance.

RASPBERRY, SHAFFER'S COLOSSAL.—This seems to be one of the native class, perhaps of the race of the Black Caps. Mr. Green compares it with the Mammoth Cluster. It is in season about the same time, and roots from the tip, as do others of that class. The color is reddish brown. Mr. T. T. Lyon says that it has more than the usual vigor of *Rubus occidentalis*. It has a tendency to fruit on the growth of the same season as the Catawissa does. From accounts it appears to be a promising fruit. It was introduced to notice by George Shaffer, of Wheatland, Monroe Co., N. Y.

BEES AND FRUIT.—At the recent meeting of the Pennsylvania State Horticultural Society, a member contended that bees could not, from the structure of their mouths, penetrate the skin of a grape, unless the fruit was cracked, or in some way injured first. The evidence, that where flowers were scarce, bees did immense damage to fruit, was conclusive, and that bunches were always saved when enclosed in paper bags, seemed to prove that the bees did all the damage.

VERY HARDY APPLES.—A large number get injured by Canadian winters. The *Canadian Horticulturist* reports the following as always hardy there. Tetofsky, Yellow Transparent, Duchess of Oldenburg, Wealthy, Magog Red Streak, and Scott's Winter, and all first class varieties.

APPLE, ROME BEAUTY.—This variety is considered one of the most valuable from Southern Ohio.

CAN FRUIT TREES BE OVER-FED?—President Barry believes that trees or plants that are under-fed become stunted and are neither useful nor beautiful. The sooner they die the better. Those that are over-fed make a rank, watery growth, which does not ripen, and is not in a condition to resist cold.

PHYLLOXERA.—The *Journal of Horticulture* says: Considerable success, we are informed, has attended the experiments of M. Thiollière de l'Isle at Tain, in France, to check the ravages of Phylloxera, by planting his vines in a soil especially prepared with sulphide of carbon.

FLAT CULTURE IN POTATO GROWING.—A few years ago there was much dispute whether

potatoes were more healthy and prolific when grown in ridges or when in flat land. The difference in the reports disgusted the simple inquirer after truth. It has since been found that soil and climate have much to do in varying the results. As a rule, the modern experiments favor ridge or hill culture. In wet or low soils it is certainly the best. In very sandy soils, liable to drought, flat culture wins.

SPONGE GROWING.—Sponge culture is a new and promising industry in Florida. Pieces two inches long are planted, and are found to grow to seven inches in seven months.

THE BLACKMAN PLUM.—The secretary of the Rosebank Nurseries, at Nashville, says: "This variety was first brought to our notice last year. It originated in Nashville, Tenn. It is an accidental seedling from a tree of the Wild Goose, which stood in close proximity to some peach trees, and the foliage and habit of the tree of the Blackman plum so much resembles the peach that it leads to the belief of a possible hybridization with the peach.

"The fruit is equal to the Wild Goose in size, as brilliant in color, a little later in the season of ripening, and of better quality, having more of the firmness of flesh found in foreign sorts. It makes a beautiful tree in a nursery, is as free from thorns and spurs, and as strong a grower as the peach."

LINSEED OIL AS A REMEDY FOR SCALE.—Our readers may remember that the writer tried linseed oil on his own fruit trees with admirable results, and fortified by this experiment gave the result of his experience to the readers of the GARDENER'S MONTHLY. But others who tried it afterwards killed their trees. We give the following from the London *Journal of Horticulture*, as it shows the same varying experience there:

"On opening the *Journal of Horticulture* this morning, I was surprised to see an old letter of mine again appearing in print. The two upright pear trees alluded to in my letter were not injured in the slightest degree by the painting of boiled linseed oil which my gardener gave them, but it was "all over" with the scale, and the trees were not infested with that pest again.

"Three years ago, an upright-trained apple tree was painted with this oil; care, however, was taken not to touch the flower buds or the leading shoots of the year. This tree is now in good, healthy, fruit-bearing condition, and is quite free from scale. My gardener has also painted a peach tree. The last year's growth and the spurs were not painted, and the result was most satisfactory. Care must be taken to

obtain pure linseed oil, as much inferior oil is now sold under the name of boiled linseed oil.

"I feel I am so much indebted to Mr. Wm. Taylor for his admirable communications to our Journal, that I shall be most willing to answer any further questions he may think proper to ask on this subject.—C M.

"[A letter will be published next week from a gardener of great experience, who has found linseed oil dangerous, and he does not advise its use as an insecticide. If in the meantime any one applies the oil to fruit trees, it is important that the above injunction be borne in mind, and the oil be obtained pure.]"

GROS COLMAR GRAPE.—A correspondent recently inquired about this variety. An English grape grower, writing to the *Gardeners' Magazine*, names it at the bottom of his list; but has the following good points to note concerning it:

"The only other black variety I shall recommend is Gros Colmar, unquestionably the most telling of all the black kinds. Its clusters of huge deeply-colored berries are sure to bring the cultivator much credit, and when fully matured it is not by any means indifferent in quality. Complaints are frequently made of the inferiority of Gros Colmar, but it has not deserved all the hard things that have been said of it, and in many instances the grower rather than the grape has been at fault. When we hear it spoken of as being so poor in flavor as to be hardly worth eating, we may be sure that it has either been grown in too low a temperature or has been cut before becoming perfectly ripe. Gros Colmar is not a cool-house grape; it requires a temperature fully equal to that necessary for the Muscat of Alexandria. I was perfectly aware of this when in charge of the Ealing Park Gardens, and in planting my long lean-to Muscat house a few canes of the Gros Colmar had a place in it. They are now removed to enable me to devote the house entirely to Muscats; but during the two or three years the latter were invariably of a rich golden hue two or three weeks before Gros Colmar had taken on the deep color for which it is distinguished. It has also been long known to me that the bunches are not fit to cut immediately the berries are black; and further, to have the grape in its highest perfection, it should hang from six weeks to two months after the coloring process has been completed. It is remarkable, considering the length of time it will hang, for the extreme thinness of its skin, which to many is a decided recommendation."

SCRAPS AND QUERIES.

LEVY'S LATE OR WINTER PEACH.—Mr. Needham sends us a copy of a letter from ex-President Grant, dated New York, November 22d, acknowledging some of the fruit, as showing how late in the season this remarkably fine Peach is in

season. Mr. Dewey has had colored lithographs taken of it.

A FINE PEACH.—Mr. T. V. Munson, Denison, Texas, under date of November 10th, 1881, writes: To-day I mail you a specimen (medium or under) of a new Peach originating in this Grayson Co., several years ago, and which has fruited several times. It is not yet ripe. For fear of losing the remaining fruit on the tree, by theft or otherwise, they were taken off to be sent to a few competent judges for opinions of its merits. When fully ripe it has a bright carmine cheek where exposed. It matures here (N. Lat. 34°) from November 1st to 15th, and exceeds in size and quality any other cling Peach of its season I know of in the South. It first appeared in a large orchard in eastern part of the County, belonging to A. H. Shirley, but was brought to the notice of our North Texas Horticultural Society by Mr. Z. P. Stoneman.

The society wished me to send samples to a few parties for a critical opinion as to its quality, &c. Downing has been requested to name it and give classical description if worthy. The tree is vigorous and like the Heath to which it seems allied, sufficiently productive. This is its northern limit of ripening, but through the Gulf States and especially in Southern California, it ought to do well. It is so firm, even when fully ripe, it can be shipped almost any distance. It shows no signs of rot. It often reaches ten inches and over in circumference. The fall here has been too cloudy and wet for it to acquire high color or its usual sweetness.

[This fine Peach weighed six ounces. If Mr. Downing thinks it sufficiently distinct from the late white Peaches already in existence, to describe it, we should be glad to have the name. —Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

SCHOOL OF FORESTRY.—There is a school of Forestry at Nancy, in France, and the Forestry Department of India, is having young men educated there for service in the East Indies. There is no school of forestry in England, and hence advantage has to be taken of the French establishment. It is unfortunately getting to be too much in England as here, that a diligent student of forestry would stand little more chance of an appointment with his graduation papers than without; and hence there is little encouragement to sustain these schools. In the matter of appointments, they serve usually to illustrate that "kissing goes by favor." But there will be a reaction, and those who know something have always the best chance.

COTTONWOOD IN KANSAS.—Some cottonwoods set out near Salina, as cuttings eight years ago, are now twenty to thirty feet high, and Salina is by no means one of the most favorable spots in Kansas for tree culture.

JOAQUIN MILLER ON FORESTRY.—We are not of those who admire Joaquin Miller's poetry, but his prose on forestry in the recent number of the *Independent*, is just of the right stripe. He thinks

as we do, that the owner of a forest who leaves dead tree trimmings and dry underbrush loose in the forest, to make fuel for tremendous forest fires, ought to be held responsible for all the damage which ensues to others.

In almost all our conventions we have talk about rewards for those who inform on the hunters whose wads start a fire, the railroads whose sparks ignite dead grass, or the poor wanderer whose camp fire makes a new start after he has departed, as the cause of a forest fire.

But if the undergrowth is kept down and dead matter not allowed to accumulate, there will be no fire to hurt the living trees. We know of a piece of wood that is burned under every year by sparks from the Reading Railroad company's locomotives, but the standing timber has never been injured.

It will not cost a thousandth part as much to clear out all the brushwood in the United States as we lose in one year by forest fires, and the true way to preserve our forests must start from just here.

At any rate this idea removes the great objection to forest planting, that it may get burned. If rank vegetation is kept down for a few years during the growth of the forest, it will by its own shade keep down the growth thereafter.

TIMBER ON THE PACIFIC COAST.—It appears Eastern Oregon and Washington Territory are already troubled about the approaching end of the "trackless" forests of those regions. Patents for land on the condition that trees are planted are popular, but it is charged that numberless patents given in this way have been evaded, and popular opinion is growing strongly in favor of pressing the law against the delinquents.

ELMS OF OHIO.—At a recent meeting of the Montgomery Horticultural Society, "Mr. Snyder claimed there were three distinct kinds of elm, namely: the yellow, red and white. The yellow will split like a chestnut; the red is like a Dutchman—it likes to go its own road; it is a little stubborn; but the white, no man, not even the lightning can rive it. In selecting your shade trees be sure and don't get the yellow—think some of the boys have got it—the white is what you want."

The white elm is we suppose *Ulmus Americana*, and the red, *Ulmus fulva*, also known as slippery elm; but which is the yellow elm? The facts are useful if we can identify the kinds.

FORESTRY MEETING.—Dr. Warder informs us that a convention will be held in April, in Cincinnati, in behalf of forestry interests, and that the Forestry Association meets there at the same time.

HONEY LOCUST TIMBER.—Prof. Budd, of Ames, Iowa, has a good word for this timber. It will probably be found very durable for posts, and as it grows rapidly, and is not known to have many insect enemies, it may be valuable for this purpose. It is, moreover, almost if not quite as rapid a grower as the *Robinia* or yellow locust. It may not be any better than yellow

locust to nail to, which is the reason why yellow locust had to be abandoned as railroad ties. Does anybody know how this is?

AILANTHUS TIMBER.—How ever this tree obtained a reputation for durable timber we never knew, and have been surprised at the enormous demand for timber planting in the West. A correspondent of the *Country Gentleman* from Middlethorpe, New York, says he "set about twenty ailanthus posts six years ago. They were large and sound, some whole, some split in two, and others in four posts. In three years they showed signs of decay. Now there is not one that is not rotted entirely off, or that could not be broken by a man pushing against it." This does not decide the matter, as there are often local circumstances, but it accords with our impression. How is it?

SPRUCE GUM.—Forty thousand dollars' worth of chewing gum is gathered in the State of Maine every year. In Oxford county is a man who makes it his business to collect spruce gum. Every year he buys from seven to nine tons. The gum is found chiefly in the region about Umbagog Lake and about the Rangely lakes. A number of men do nothing else in the winter season except collect gum. With snowshoes, ax, and a sheboygan, on which is packed the gum, they spend days and nights in the woods. The clear, pure lumps of gum are sold in their native state, the best bringing one dollar per pound.—*Scientific American*.

LOCUST SHINGLES.—A correspondent inquires about the value of yellow locust shingles. They would probably split under hot sun, but we have no certain knowledge. Has any one tried them?

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE BACTERIA THEORY.

BY A. A. BENSEL, NEWBURG, N. Y.

When you say, in the February number, that "none of Cohn's experiments prove that bacteria ever interfere with life," you give utterance to the plain truth in regard to all other experi-

ments, and theories on this subject. Bacteria can only live and increase upon inert matter. In healthy trees, the rapid passage of the fluid containing them through the fibrous tissues will break and destroy the simple and very delicate organism. The increase of these bacteria is the first indication of the suspension of vital activity in trees and vegetables. The virus passed into healthy pear trees by inoculation from those

diseased is not the virus produced by bacteria; but the poison originates in vitiated sap. Now, this sap is simply that which has accumulated in the tree and its branches since the fall of the leaf, and has not been aerated, but frozen and devitalized during the winter. Remaining in the tree in spring, it clogs the channels and disturbs the whole economy of the structure. Warm weather and a mingling of this inert fluid with the active sap causes a great increase of bacteria—the operating principle in all fermentation—and when the disease reaches a certain stage it becomes apparent in suddenly blackened leaves and withering branches. This is the only theory that can satisfy all the requirements of the case.

There must be some error about bacteria abounding in the circulatory vessels of human beings. They are not in the blood, and can be found nowhere but in the large intestines. Infusoria are, doubtless, in the human body, but they possess an independent motion, and differ widely from bacteria.

THE INFLUENCE OF ELECTRIC LIGHT ON PLANTS.

Translated for the GARDENER'S MONTHLY from the *Berliner Tribune*.

BY S. M.

How much of human progress we would miss if we could not master electricity! As it is, space and time are almost annihilated, and electricity begins even to compete now with the sun. Night is transformed into day, and that time may not be distant when every steamer, crossing the ocean, will carry its electric sun to chase away the terrors of the night. In this line electricity seems likely in future to substitute the sun also for the field and the garden, and may attain an incalculable importance.

We have heretofore been told that the beneficent influence of alternating day and night on us mortals is effected both through the change from activity to rest, and from light to darkness. Our eyelids would not droop so easily, and sleep would not be so refreshing if the stimulus of light were uninterrupted. We are likewise inclined to believe that the repose in darkness is necessary for plants, as though it were a rest from the stimulus of the light of day. Closely considered, we find that the change from day to night is after all but a relative one on our planet, and subject to the widest variations. On one hand, the constantly equal length of night

and day under the Equator; on the other hand, night of six months' duration at the poles, and all the gradations between. This would seem to prove that, as a general principle, the alternation of day and night would not be necessary for plants, and the investigations of Mr. C. W. Siemens, in London, would almost make sure that many plants at least not only can stand constant light, but will improve under it in growth.

As long as eighteen months ago, Mr. Siemens already published his experiments on the influence of electric light on vegetation, and they showed that its effects on plants were similar to sunlight, that they formed chlorophyll (leaf-green); that, under it, blossoms and fruit, odoriferous and savory, were developed—in fact, that a periodical withdrawal of light during the twenty-four hours was not generally necessary, but that, on the contrary, many plants would grow stronger and richer if, in winter-time, exposed by day to sunlight, by night to electric light.

Since then Mr. Siemens has continued his investigations on a larger scale, and they claim so general an interest, that it seems proper to speak about them here, after his report read last September before the *British Association*.

Mr. Siemens used two electric lamps, worked by the currents of two electro-dynamic machines, each supplying the light of four thousand candles. One lamp was hung inside of a glass house of 2,318 cubic feet of space, over the entrance, and a metallic reflector was fixed before it for the purpose of collecting its rays and turn them on the plants, which otherwise would have lost them. The other lamp was hung in the open air, twelve to fourteen feet high over some low-situated glass houses. These experiments lasted from the 23rd of October, 1880, to the 7th of May, 1881. The electric light glowed from six in the evening, and, during the shorter days, from five in the evening. The only rest given the plants was during Sundays. There were peas, string beans, wheat, barley, oats, cauliflower, raspberries, strawberries, peaches, golden apples (tomatoes?) grapes, and some flowers, such as roses, Rhododendrons and Azaleas. The lamp in the open air had a glass shade, the lamp inside had none. The effect of the two lamps immediately showed a great difference. The plants under the first prospered exceedingly; under the second they soon got to look wilted. But as

soon as a thin colorless glass was fixed between the plants and the light the pernicious influence ceased—a remedy acting in wonderfully quick time. Again, if the glass was fixed so as to intercept the light only on some parts of the plants, leaving others exposed to the naked rays, the influence of protection and exposure showed itself in one single night, and very markedly. The exposed parts looked shrunk, the protected parts looked sound and strong. And not the leaves alone showed the marks of the destructive power, but also, though less markedly, the young stems showed them after they had been exposed to the open light at a distance of about twenty feet from it.

Now, why does that glass shade protect the plants? The really illuminating rays are not obstructed by it. Stokes, however, has shown, in the year 1853, that the arc of electric light is rich in those invisible rays of great frangibility, which are of ultra violet color, and also that the greater part of them is absorbed by glass. It consequently seemed as though these were the enemies of plants, whilst the illuminating rays of less frangibility would stimulate their growth. To arrive at greater certainty, Mr. Siemens planted mustard and other quickly germinating seeds, dividing the ground in equal radii, so that all the plants should be at an equal distance from the light. Part of them were exposed to the naked light, another part was covered with a pane of glass, a third with yellow glass, a fourth with red, and a fifth with blue glass. The relative development of the plants was noted down every day, and the differences were of a marked character. The plants under the colorless glass were strong and healthy beyond all the rest. Next came those under yellow glass; they were as large as the former in size, but color and thickness of stem were less than in the former. The plants under the red glass were lanky, and their leaves had a yellow tinge. Under the blue glass they were still more lanky, and the leaves looked sickly. The plants under the naked light were worst of all, looking very poor, their leaves very dark and partly shrunk. These results agree with those which Mr. Draper in the year 1843 obtained, in his investigations of the influence on plants of the different colors of the solar spectrum, viz., that it is principally the yellow rays which work the disintegration of carbonic acid in the cells of the plants, and not the violet rays, contrary to their usual chemical effect.

Mr. Siemens, after these experiments, put a glass shade round the electrical lamp, and obtained marvelous results. Peas, sown end of October, gave a ripe crop on the 16th of February. Raspberry plants, brought into the greenhouse on the 16th of December, had ripe fruit on the first of March; and strawberries, planted at about the same time, bore ripe fruit of superior flavor on the 14th of February. Grapevines making shoots on the 26th of December, bore ripe grapes on the 10th of March, but these were more acid than usual. Wheat, oats and barley grew with tremendous rapidity, but did not ripen in proportion to their strength, they had grown too fast, and when twelve inches high had fallen to the ground. When sown out of doors, and exposed until beginning of May to the electrical light, hung in the open air, after having been sown on the 5th of January, and retarded in their growth for some time by snow and frost, they developed quickly as soon as mild weather set in, and had ripe grains end of June following.

The next experiment was to find whether, contrary to the doubts of botanists, such plants would propagate their kind. So peas, grown under the constant influence of the electric light, and gathered on the sixteenth of February, were planted on the eighteenth of February. They came up in a few days and grew finely. However further requirements will be necessary to establish positive conclusions.

Now, although darkness seems to favor length of growth in stems, Mr. Siemens is of opinion, after experiments made in the course of two winters, that the continual stimulus of light calls forth an accelerated and sound growth of the plant through all its stages, from the first leaf to the ripened fruit. Moreover the fruit, thus obtained, is superior in size, aroma and flavor, and finally the seed in it will germinate and produce. A particularly strong influence had his light on a Banana plant, which was twice exposed to it, first during its first stage of growth, next during the stage of fruiting—February and March, 1880 and 1881—and produced fruit weighing about seventy-five pounds, each banana of unusual size, and declared by connoisseurs of unsurpassed taste. Melons also succeeded remarkably and were of unusual size and aroma.

These experiments were not made to obtain results in the way of quantity, but to establish the influence which electric light had on plants generally. Nevertheless, Mr. Siemens thinks

that it will not be long before electric light will be of great service to horticulture, inasmuch as it makes the gardener independent of climate and season; and, he adds, it might further lead to the production of new varieties. What he has obtained thus far, warranted him, he says, in obtaining better and better results, as soon as he learned the proper conditions of temperature and the proper strength of light applied. He will not let these experiments stand as mere curiosities, but he will try to make them practically useful to agriculture. Here, of course, the cost comes in and decides. To produce electric light a motive power is required, putting in motion a dynamo-electrical machine yielding the required electrical current. Where there is water power, the cost will obviously be small. But the cost of steam can also be reduced, if after having done its work for the dynamo-electrical machine, the steam were used to heat the greenhouses and saved fuel there; otherwise daylight would be equal to a positive loss. Again, the electro-dynamic machine, used by night to produce electric light, could in the daytime be used to furnish power. The electrical current might be directed through wires to various points on the place and drive electro-dynamic machines for various purposes, such as cutting wood, pumping water, etc., perhaps also for threshing, mowing and ploughing. These things are now done by movable steam engines which require water and fuel all the time, and also a skilful and careful attendance, and are comparatively heavy. Electro-dynamic machines on the other hand are comparatively light and are simply fed through wires with electricity, produced at the central station, and there less fuel is necessary to produce steam than in the open field.

Thus electricity seems to claim a new field and a promising one in the development of our civilization.

FREMONTIA CALIFORNICA, AND A HOWL.

BY A COLLECTOR.

Our *Fremontia* was once known as *Cheiranthodendron Californicum*. I revere the name of the man who changed it.

There are probably very few of your readers who have ever seen the *Fremontia* in bloom; and when gathering its seeds in the fall, I almost wish there were none of them who desired to do so. Yet I wonder why there are no more who undertake its cultivation. It cannot be very

tender, for I find it growing so high upon the mountains that no one attempts to raise any sort of vegetables. Where it freezes every month in the year, there it grows, in low bushes three or four feet high. This is the highest locality I know of. Lower down it extends almost to the level of the valley; one bush growing near the mouth of Lytle Creek. A few miles further up this stream it is in its glory; large spreading bushes, eight to ten feet high, clothed in the spring, with dense masses of bloom, which so thickly cover the twigs, that one flower crowds the next. From the ground to the summit one mass of golden yellow flowers, scarcely a glimpse of the little oak-shaped green leaves can be seen through the glow or color. Its large flowers are an inch or two across, and last quite a long time in bloom. After the fading of the flower, comes a long, pointed seed vessel, containing a few small, black, hard, round seeds, with a little golden-yellow dot at one end, where they grow fast to the capsule, the outside and inside of which is covered with a thick coating of short, stiff, sharp hairs, that cause vexation to the spirits, and itching to the skin of the collector. In gathering the seed on a warm day, the irritation caused by these little prickles, is almost unendurable; on cleaning the seed in the cooler weather in the fall, I find the irritation much less.

Ah, the torments I have endured in gathering *Fremontia* seed! When arriving hot and sweaty at the bush, you begin gathering carefully, cutting them off with a knife. This does well for a time; but presently you strike your hand against a twig full of them. How they sting—the villainous things! You become more reckless; the back of your hand is covered with their little prickling points. Gathering with a knife is slow work; surely one can carefully gather them by hand; to be sure, that gets along faster. But have I got the hives; or what is this intolerable stinging between the fingers in the tender skin at the junction with the hand? Why, *Fremontia* stings! As I live by bread, I would almost as soon be rolled in a nest of ants. And to cap the climax, one or two get down the back of my neck, leaving a long stinging trail as they roll over and over on their long journey to my waist. I never before knew my back was so long.

My belief is that the first *Fremontia* was white. A prehistoric collector came along hunting for seed, began gathering; and the more he gathered, the hotter his temper got, until finally,

the sulphurous fumes of his cursing became entrusted on the flowers so deeply and indelibly, that their color was changed and their progeny has retained it to this day. I doubt if one could conscientiously remain long a deacon in the church and be a collector of *Fremontia* seed at the same time.

Perhaps you think if it is such a vile stinging thing, "I won't try to grow any." For your consolation be it known, that it is very likely not to seed with you, and as the capsule alone is the annoyance to be found, this need be no detriment, as it is a shy seeder in its native habitat, and in a new home might not seed at all. Even should it do so, you are under no obligations to go clawing around among them as a seed collector is compelled to do.

I would be sorry to deter any one from the cultivation of this beautiful shrub. When covered in the spring with its spreading wealth of yellow flowers, few can equal it in beauty.

As regards hardness, I think it could be raised anywhere in the Eastern States; but it would be in its prime at, and especially south of, Philadelphia. The seeds are hard to germinate, and the plant is not a rapid grower, but, like many good things, requires time to mature. I would recommend the thorough soaking of the seed until swollen, and not too sandy soil to grow them in, as it loves best a red soil with considerable clay in its composition, but not stiff with it.

This is not apt ever to become a fashionable flower, as it is harder to start, and not as easily raised as a florist likes to have plants; besides, it did not come from Japan, which just now seems to be the criterion of the East. Perhaps if it was extensively advertised as the *Fremontia Californica* "from Japan," more might be induced to try its culture; but simply an American plant, "why, it must be common." In Europe, the thing is reversed. "From California? why, it must be good," and they buy it.

The time may come when Americans will raise American plants, as well as wear American silks and American watches. Does not the broad sweep of hills and prairies and plains, from ocean to ocean, from the twin gulfs of the South to the land of blue noses and snow of Cousin Johnnie, possess plants enough worthy of a place in our gardens, that we must play second violin to European flower merchants, who furnish us with most or nearly all of our novelties?

Who knows; perhaps my collectoral grapes

may be sour. I never expected them to contain over ten per centum of saccharine matter; but it is provoking after having gathered seeds of some handsome flowers, and written, trying to induce some one to try a few, to receive for answer, "but this, but that, but the other thing." All meaning that they are afraid to risk a few dollars or cents on a new American thing, because people will not buy it. I don't know how they found out; they never seem to try, but go on in their catalogues, up one page and down another, *Callirhoe*, *Calandrina*, *Candy-tuft*, *Catch-fly*, *Clarkia*, *Collinsia*, the same old weary grind of common trash, scarcely worth weeding. Why, there are going to waste on American lands and pastures, or hill-top and mountain valley, and the hot sands of California deserts infinitely handsomer plants and often as easily raised. Yet they drone over and over the same old stereotyped list year in and year out, both wheels in the rut, and no wish to get out of it.

"Yes, but because it is new is not saying it is good." True for you most sapient florist; but perhaps the collar will fit the off horse. All that is old may not be good; you know everything that is, is not always right.

I fancy the fault is as much with the people as with the florists. They have not the true love for flowers that causes them to hunt for new ones; they desire more a show of bright colors to please the eye, secured with as little labor as possible. Some cheap showy annuals fill the bill for them, and the florists pander to their wishes.

Give us a larger list, Oh ye brothers of the pot and package! Increase your borders and enlarge your catalogues, whistle the star spangled banner, tell the printer to buy a new electrotype with an addenda on it, where a few, ever so few native plants may appear.

Think what a catastrophe a war with Europe would be for seedsmen, so dependent are they on foreign dealers. I wonder how many of them could keep on for six months. I do not wish to be understood as begging custom as a collector, as my bread and butter is secured from another source; but I plead as an American for as complete an independence as we can achieve, as a lover of plants, for the diffusion of desirable species; but chiefly because I love to watch a new plant develop its leaves, see the new growth start, observe the expanding buds and wonder at the shape of the flowers. And, Mr. Seedsman, there are hundreds just like me, simple male and

female mortals that love flowers and like to work among them, and try new ones as our means permit; when the opportunity presents itself we buy. Offer us the chance and perhaps we will buy more frequently.

[Perhaps some of our readers will think some of the fuzz from the *Fremontia* capsules are worrying our friend's back even as he writes. We must say a word for American horticulturists. We do not believe any such a dislike for American plants exists as our correspondent supposes. Nine-tenths of all the plants in cultivation in the Atlantic States are of American origin. Japan trees are only popular because they have generally been found to thrive well in the climate. California annuals are popular because they mostly do well. California trees and shrubs are not popular for no other reason than that they have not been found to do well. The *Fremontia* deserves all the commendation our correspondent bestows on it, but we do not know that it has ever been tried under culture in the East. Though experience with so many other things is against it, it would be well worth a trial.—Ed G. M.]

EDITORIAL NOTES.

COCO GRASS.—We have three answers to our Arkansas correspondent's query, at page 59, in our last.

One says, "The awful nuisance referred to is *Cenchrus tribuloides*." But this is an annual grass, while our correspondent describes his as a perennial, and the "great nuisance" comes from its perennial roots.

Another correspondent, having evidently the perennial root in mind, writes: "He means *Cyperus rotundus*, var. *hydra*. It is a horrible pest;" but here again we are met with the statement that it "grows from four to eight feet high," which we are sure *Cyperus hydra* never does.

Two correspondents write that "Johnson grass is *Sorghum halapense*," and this may be, as that is a tall perennial grass, but yet hardly likely to be a serious pest in a cotton field. It seems as if "What is it?" is still a fair question.

THE PAST SEASON IN CALIFORNIA.—A correspondent from Nordhoff, Ventura County, writes that there has been no rain there for nine months, to January 17th. Sheep have been of-

fered at 75 cents each, and no buyers. Streams for irrigating are low, but still sufficient to keep the crops in fair health. The climate is, however, admirable for those suffering from pleural troubles. The mountains are covered with a luxuriant forest vegetation. He encloses some spirited lines from a local poet, representing Diana complaining to Jupiter of the woodman's axe in other parts of the country, destroying the arborescent retreats given to her and her chaste maidens for the pleasure of the chase, and Jupiter directing her to these woods of the Ojai (pronounced O-he) valley, where they will probably never be disturbed.

SECTION OF THE MAMMOTH TREE OF CALIFORNIA.—Can any of our readers tell what became of the large section exhibited at the Centennial? A correspondent would be glad to know.

NORTH AMERICAN LICHENS.—A synopsis by Edward Tuckerman is in preparation, and volume first will be issued from the press early in the spring.

THE WINTER IN FRANCE.—Under date of December 25th, Mr. Jean Sisley, writing to a friend in this country, describes the French winter as being open and peculiar, much the same as ours has been.

DESMODIUM PENDULIFLORUM.—Under this name, and also that of *D. racemosum*, one of the most beautiful hardy herbaceous plants known to our gardens has been rather widely circulated since it was admired in the Japanese garden in the Centennial grounds in Philadelphia. Dr. Hooker has recently examined the history of the plant, and finds its proper name to be *Lespedeza bicolor*.

PRITCHARDIA GRANDIS.—Palms have their homes in tropical climes. Their remains are found in arctic geological formations, but nothing like palms grow there now, so tropical are they that they barely enter the limits of the United States. In the Atlantic region of our country, the Palmetto and other allied species are found from, say, Louisiana eastwardly down through Florida, and a few years ago a species was found coming up on the west into California. This was at first supposed to be a *Brahea*, a genus allied to *Corypha*, which is well known to those who love to grow palms. With better knowledge it was found distinct from *Brahea*, and it was placed in *Pritchardia*, under which name our pretty

California Palm is yet generally known in collections; though as it has been still better studied it is found by Wendland not to be even a Pritchardia,

Palm, gives an interest to all those of its old name, and with which it is so closely allied. We now give an illustration of a new species just



PRITCHARDIA GRANDIS.

but an entirely new genus which he names Washingtonia. However, the widespread name of Pritchardia in connection with the California

made known to horticulturists by Mr. William Bull of Chelsea, near London. It was discovered in the South Sea Islands by one of Mr. W. B.'s

Plant Collectors, and takes rank amongst the most distinct and attractive palms ever introduced. Of robust compact habit, producing large handsome leaves, which are nearly orbicular in general outline, with a wedge shaped somewhat truncate base; the venation is palmate, and the margin for the greater part of the circumference is divided into narrow oblong lobes, each of which is slightly notched. The leaves are originally flat, but become convex above as they grow older; they are of a dark shining green color above, paler beneath, and the surface is quite destitute of pubescence.

THE RAIN TREE.—There seems to be no doubt of the truth of the travelers' statement that *Pithecelobium Saman* has the power of growing in the driest deserts, and of condensing from the atmosphere the moisture it needs, which falls in drops from the tree to the ground. The English government is introducing it to culture in India.

THE CHINESE VARNISH TREE.—In the last report of Kew Gardens, the fact for the first time appears that the Chinese Varnish tree is a very distinct plant from the Japanese. The latter is *Rhus vernicifera*, closely allied, if not indeed quite the same with our poison ash, *Rhus venenata*. The Chinese is *Aleurites vernicia*, one of that class of euphorbiaceous plants to which the candle tree belongs.

ARCTIC CONIFERÆ.—The following are the Pines which Baron Nordenskjöld found to the extreme north of the Russian possessions: *Larix Sibirica*, *Pinus Cembra*, *Pinus Sibirica*, sometimes known as *R. pichta*, *Pinus sylvestris*, a Scotch Pine, and *Picea obovata*, which is the same or nearly the same as that grown in our nurseries as Oriental spruce.

A SWEET ORCHID.—*Cymbidium alceifolium* is not a remarkably showy orchid, nor is the *Mignonette* a showy plant. This orchid is sweeter than the *mignonette*. A plant with five fine spikes of flowers at the January meeting of the Germantown Horticultural Society, filled the hall with fragrance. How sweet must be those East Indian woods in which it grows wild.

INFLUENCE OF THE STOCK ON THE GRAFT.—Dr. Sturtevant in the proceedings of the Massachusetts Horticultural Society, has an exhaustive paper on this subject. Thirty-eight cases where there appears to be some influence, and twenty-six where the scion had an influence on the

stock. Most of the latter however seem to refer chiefly to variegation. It is interesting to note that this fact seems to have been known. Dr. Sturtevant quotes from John Bartram, February 3d, 1741-2, viz.: "Take a bud from a variegated jessamine and insert it into a plain jessamine; not only the bud will continue its variegation, but will also infect and impregnate the circulating juices that the branches and leaves above and below the bud will appear variegated."—*Darlington's Memorials*, 148. And there are earlier cases on record in England. The other cases seem to us to need confirmation. The following case for instance is one, on which we have before commented as doing, we believe, injustice to Prof. Beal: "A potato scion set into a tomato plant induced the latter to set small tubers in the axils of its leaves, as we see sometimes on the tops of potatoes. The grafting of an artichoke plant into a sunflower caused the latter to set tubers under ground."—*Prof. Beal, Ag. of Mich.*, 1876, 204. In the way it is presented here, and has been in other papers, Prof. Beal is made to appear as the authority for the fact, while if we remember correctly, Prof. Beal was only enumerating what had been reported to be done by some unknown person. To our mind such a fact as this reported, should be repeated and placed beyond the shadow of a doubt before it is an accepted truth. A few cases are recorded where there seems to have been some distinct character, a sort of hybridization or crossing effected, but in a general way there is little but what may be referred to nutrition. That is, the plants or the fruit were larger or smaller, highly colored or dull colored, sweeter or more acid, flowered earlier or flowered later, any of which might be produced by variations in soil or situation as well as by the influence of the stock. In other words various stocks have the same varying influence in affecting nutrition as varying soils would.

Our own opinion is, after carefully going over the ground, that there is reason to believe that distinct varieties (not merely temporary changes) may originate from grafting, but that the undoubted facts recorded are too few to render it wholly safe to believe that this ever occurs to any great extent.

MANIPULATED WINES.—It is said that a large quantity of first class wine exported from Europe is made of 90 per cent. water, 10 per cent. alcohol, and 5 per cent. tannin with some variation in the relative proportions according to the brand.

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

COMMUNICATIONS.

PROF. C. V. RILEY AND THE YUCCA MOTH.

BY PROFESSOR C. V. RILEY, WASHINGTON, D. C.

The above is the title of an editorial in the October number of the *GARDENER'S MONTHLY*. Though containing reflections upon others, as well as myself, I have taken no notice of it till now, which I hope will be evidence to you that in what I now write I have no personal feeling beyond the friendliness that has for so many years existed between us.

First, then, it is to be regretted that you are not more careful in your quotations. You charge me with using the following language in the paper which calls forth your comment: "misrepresentation," "gross misstatements," "misconstruction unjustifiable." There is not one of these expressions in my paper, and this fact very well illustrates the inaccuracy and looseness of your article. The expressions which you correctly quote, viz.: "unscientific statements," "pure misstatements," and "famous" ones, are more than justified by the text of my criticism, and (as I think you will admit upon reflection) are not in that case of such a character as to warrant your charge that said criticism is an "attack" upon you. If you deny this assertion, please publish the criticism, and leave the judgment with your readers.

The gravest charge in your editorial alluded to is, however, not against me, but against the Permanent Secretary of the American Association for the Advancement of Science, who has during so many years earned the confidence and received the approbation of the Association for his impartial editing of its proceedings. You say, "The volume has just been issued, and besides the paper ordered to appear are copious foot-notes added, which the officers of the society did not order in. Thus we have the anomaly of a volume of 'transactions' issuing a paper which was never transacted." Not to comment on the oddity of the sentence, or the "anomaly" of a volume issuing a paper, I must remark that the statement in the sentence is utterly false.

My paper appears as it was read and presented, though in order to occupy less time, as

stated on the occasion, the foot-notes were but briefly referred to and the substance only of the more technical and classificatory material was given. Having been a member both of the Sectional and Standing Committees which passed upon the papers, I know that the officers of the Association ordered the paper printed without reading the whole of it. This, as you are very well aware, is the common practice even with papers not read from manuscript, but of which the substance merely is given by the author before some particular section of the Association. Large discretion is necessarily left with the Secretary, on whom your unjust accusation really falls.

The approbation which you offer to the officers of the Association in the concluding paragraph of said editorial is, therefore, as awkward and disingenuous as the compliment you pay me, for I beg to assure you, in conclusion, that my criticisms were not, as you put it, "simply a thoughtless act of impropriety," since they were well weighed and, in my judgment, well deserved.

They give the gist of my comment in unreported discussion before the Association of some of your communications thereto, during the past few years, and if, as I believe and hope, you are working for the truth rather than the enforcement of any pet views or theories, you will find room in the columns of your magazine for this communication, and I will then follow it by a brief statement of the points at issue between us.

[We must decline Professor Riley's offer to continue the discussion of this subject. It will be apparent to the reader that the only excuse the editor can offer for the admission of even this letter is, that some personal feeling might be attributed to him by declining it. Those who care enough for the subject to see how "utterly false" the editor's statements were, will of course read the "Proceedings," and judge for themselves.—Ed. G. M.]

THE WILD GARDEN.

LETTER FROM MR. W. ROBINSON, THE EDITOR OF THE GARDEN.

I had never much reason to suppose that you

sympathized greatly with plain ways of talking about things, especially about plants. But I am sure you do not want to be unjust to my book, and therefore I want you to print a few words about your notice of the "Wild Garden." From the tenor of your review any one would suppose that my mission was to use English names instead of Latin ones! I never thought of this, though I have sympathy enough with non-technical people—that is to say, with the public, educated or non-educated—to know that you will never succeed in cramming Latin—dog and otherwise—down their throats. I also know that in other countries, as scientific as the country of your adoption, or as this country, writers habitually use their native tongue in speaking of plants and other things that men of science talk about. I could refer you to excellent books in French and German where men of the highest knowledge use their own language (sometimes in addition to the Latin nomenclature) in speaking of things that ought to be so familiar to everybody as the flowers of our gardens, and the trees of our woods. No one would suppose, from your review of the "Wild Garden," that the Latin names were given in the descriptive part, as well as the English names, when good or fitting English names happened to exist. When you go on to criticise the English names that are given, and express surprise at such a name as the "Cheddar pink," then one sees the amount of attention you have paid to the subject.

You say: "Though we have endeavored to keep the track of Mr. Robinson's new names as they appeared in the *Garden*, we find a large number here that we know nothing about, and in consequence all that he says about the plants might as well have been written in Chinese. We suppose "Cheddar pink" is some sort of a *Dianthus*."

If, indeed, your knowledge of the English flower does not inform you that the Cheddar pink is a well-known English plant, that grows in that most interesting and beautiful rocky gorge at Cheddar, in Somerset, then one cannot suppose you have gone very deeply into English plant names. The name Cheddar pink is not mine, but a well-established English name. So, too, the other English names you speak of are, some of them, mere translations, which ought not to be difficult to anybody that knows plants, and which would be used in preference by many persons who knew both names. I have no doubt that many American lovers of plants

would willingly use fitting English names, and I have reason to know that the leading weekly journals in America sympathize with efforts in this direction.

Further on you take a set of phrases used in the "Wild Garden" as descriptive, such as "pretty little rosy bindweed," which is part of the text, and has nothing to do with English names, and you call it an English name!

If one advocated the abolition of Latin names altogether—an absurdity, in the face of the fact that we have no organized English names—one could understand your objections in the matter, but that you should object to the use of an English name where it is possible to get a good one, or to the invention of a name where the Latin one is very awkward, seems to us to indicate a want of sympathy with the real wants of the flower-loving public, as distinguished from those brought up on botanical terms, so to say. It may suit a minute philosopher to raise a question of this kind (entirely apart from the aim and plan of the book), and to take no account of the book itself, its artistic illustrations or what it advocates. But that is not fair to the book, and is scarcely common sense. English names are in no way made more prominent than they are in Professor Gray's book on the plants of North America, a book on a professedly more technical subject. Indeed my practice is that of your best American authors, and is justified alike by the genius of our language, the wants and tastes of our people, and in the interest of science itself! We have no right, as the Professor of Anglo-Saxon at Oxford says, to bar the fairest gate of knowledge, by the use of more technical terms than are necessary. I find that American books and American literature help me, in my desire to give an English name in addition to the Latin one. I am now preparing the *English Flower Garden*, the vast mass of matter for which must be arranged alphabetically after the Latin names, but it is pleasant to be able, instead of saying *Epigæa repens* alone, to add the pretty name of May flower, which is an American name. How very shocking of some American botanists to add that this plant is also called "trailing arbutus!" I am sure they will meet with your disapprobation! But this simple New England name, with the associations it calls up, tells even in this country, where it has only been used of late, more of the history of the plant than its Latin name ever can. Wishing you a happy New Year, and that Heaven may deliver you and

every earnest soul from pedantry and bad Latin, love of jaw-breakers, and every other misfortune and illusion.

[Certainly, we do not "sympathize with plain ways of talking," as illustrated by Mr. Robinson's letter, which is inserted only because justice is invoked in its behalf. We are proud to believe that the style of writing, employed both by Mr. Robinson and Mr. Riley as above, is not popular "in the country of your adoption."

And, as it is a question of justice, our readers will see it is far off the mark. We have never objected to common names when they are common. We have Pansy, Violet, Sweet William and hundreds of similar common names. These are genuine common names, and we wish we had more of them. We use "May flower" and "trailing arbutus;" these came to us from the common people. They are truly common names. Our point with Mr. Robinson is, that he is manufacturing and issuing names as common names which are not common, and of which not one in a hundred ever will be.

Dr. Gray is referred to as though he had coined names as what Mr. Robinson is doing. If he has, he is probably sorry. The writer of this has attempted something of the kind, and certainly regrets it. He fell into the error he believes Mr. Robinson is still under, of believing he could make common names for the common people. He found they will make their own names, and however desirable and pretty they may be, we must wait till they make them. It is not with common names, but with what in propriety we may call their spurious and wholesale manufacture that we contend, proceeding which the people themselves will overturn when the "names" in question become common enough for the public to take a vote on them.—Ed. G. M.]

EDITORIAL NOTES.

LEGEND OF THE CORNELIA COOK ROSE.—This rose we believe was raised by Mr. Koch, florist, of Baltimore, in the usual way that new roses are raised. He will no doubt be amused at the following account of his efforts, as given in the *Philadelphia Press*:

"'Cornelia Cook' is another very beautiful specimen of the flower queen. This species is quite a recent addition to the variety, and was forced by judicious transplanting and grafting. It is of a creamy white color, large and full, and

also worth fifty cents apiece. Quite a little romance, so I was told, is connected with its name. A young florist was deeply in love with a beautiful young girl named Cornelia, and was engaged to be married to her. However, she sickened and died a few days prior to the wedding. The heart-broken lover was almost distracted with grief, and spent hours at her grave transforming the grassy mound into a bower for Titania. In life the young lady had a delicate creamy complexion, and the lover determined to produce a rose which would remind him of his lost one. After repeated failures with different plants, he at last succeeded, and christened the graceful blossom Cornelia Cook. Sometimes it is called 'Love's Last Gift.'"

FLORA OF AUSTRALIA.—Robert Brown, in the beginning of the present century, collected an enormous number of species. He made no distribution, however, till the collection fell into the hands of Mr. Bennett, in 1858. Bennett died in 1876, when the collection was divided. Although the collection which went to Kew was but the third set, it contained the great number of 3,015 species.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.—This Society, after a struggle of twenty-two years with a limited name, becomes the "Pennsylvania State Horticultural Association." Under its old name it was found next to impossible to interest the general public in its real work. At the recent meeting in Harrisburg, there was scarcely more than a dozen of the citizens at the meeting, outside of the very large attendance of members from other parts of the State. The general belief was that a "Fruit Growers' Society" was a body of men who met together to groan over the prospective short crop of peaches which never occurred, but served to put up prices on the down-trodden consumer; or similar "shop" work. The Society has always embraced among its objects everything which tended to make the garden not only more profitable, but more lovable, and in the pursuit of these objects it will not at least be burdened in the future with a name which misrepresented it before the best classes in the community.

MICHIGAN HORTICULTURAL SOCIETY.—The roll of some of our Western horticultural societies shows that the Great West is growing out of childhood. Mr. A. Sigler, of Adrian, has been a member of the Michigan Horticultural Society for a quarter of a century. It must be a source of pleasure when these old members look around them and note how much for good has been accomplished by their public-spirited labors.

DISAPPEARANCE OF A GARDENER.—Robert Carey, a gardener, and well-known successful hot-house grape-grower, of Hulmeville, Bucks Co., Pa., disappeared in January, and has not since been heard of. He was about 65 years of age, had long been with his employer, and was regarded as a remarkably steady and sober man. He was sent to Philadelphia to settle accounts and make purchases, and in searching for him he was found to have faithfully executed all his commissions, except one of \$2.00 before trace of him was lost.

W. O'BRIEN.—Among those recently deceased we have to notice this gentleman, who was formerly one of the most intelligent and successful gardeners in the East; but for years past was the able manager of the Belle Conservatories of Sacramento. He was especially successful there in growing the famous Victoria Lily. His death is classed with that of B. F. Fox, a serious loss to California Horticulture. He died on the 15th of January.

THE FLORIST AND POMOLOGIST.—This very beautiful monthly magazine gives in its January number colored plates of *Lilium Parryi* of California, and *L. polyphyllum* from the East Indies. It is one of the most valuable European magazines that comes to our table, and we are glad to know that it has a growing and appreciative patronage. It gives every month a colored plate of some new and desirable fruit as well as one of flowers.

We notice, by the way, that its editor, Thomas Moore, who, since the death of Dr. Lindley, has been jointly with Dr. Masters, editor of the *London Gardener's Chronicle*, retires now from that responsible position, with renewed work, as it would seem, on the *Florist and Pomologist*. He has been for many long years a patient worker in horticulture and kindred arts and sciences without much recognition of the valuable work he has done. The *Gardener's Chronicle*, *Treasury of Botany*, *Epitome of Gardening*, *Ferns of Great Britain*, *Index Filicum*, *Handbook of British Ferns*, edition of *Thompson's Gardener's Assistant*, besides the *Florist and Pomologist*, have all been under obligations, while he still continues his many years' labors as Curator of the Chelsea Botanic Garden. Some of us in America think we work hard for the public good, but we have at least as good an example in Mr. Moore.

PRODUCE OF FRENCH VINEYARDS.—By the kindness of Mr. Charles Joly, we have received the statistical results of last year's crop of wine in

France. For the eight years previous to 1879, the average production of wine each year was about 54,000,000 hectolitres. The highest (1875) gave over 83,000,000, and the lowest (1873), nearly 36,000,000. But in 1879, the serious troubles began, and the product sank to 25,770,000. Since then there seems a gradual recovery, and the past year shows a production of 34,138,000. The calculation has been made by districts, so that it is seen that the increase in the average is not through the great advance of a few favored spots. Some few districts still show a loss over last year,—still going down hill,—the Department of Herault, for instance, showing a loss over last year of 1,273,000. But as a general rule, those districts which have lost last year, have lost very little, while most of those which have gained, have gained enormously. It is evident that the *Phylloxera* is not the formidable foe any longer it was once, either in France or in America.

It will surprise those not well conversant with French products, to note the enormous amount of cider produced in France, which shows it to be an industry of as much importance in many respects as grape-growing. In 1875, there were 18,257,000 hectolitres produced, which is, however, the highest during the past ten years. Last year the product was 17,122,285, higher than it has been any year since 1875, and remarkable when we consider the reports which come to us of the great losses among fruit trees in Europe by the winter of 1880-81.

GENERAL INDEX AND SUPPLEMENT TO THE NINE REPORTS ON THE INSECTS OF MISSOURI.—By Charles V. Riley. Being Bulletin No. 6 of the United States Entomological Commission.

Prof. Riley's work as Entomologist of Missouri, did infinite credit to the State which employed him; but these labors are considerably enhanced in value by this Index. It is often a matter of astonishment that there is not more of this indexing done by public bodies.

REPORT OF THE ROYAL GARDENS FOR 1880.—From Sir Joseph Hooker, director.—As in our country, so in the old world, government printing is slow work, and it seems slow work to read in 1882 of what was reported on a year ago. On reading this admirable report, one cannot help wishing we had such a garden in our own country. Great attention is given to the examination and exact determination of the various economic vegetable products which from time to time

appear, with careful suggestions as to how these may be made to aid English interests. This report is especially rich in information about the various kinds of India rubbers and gums of that class.

BULLETIN OF THE UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.—Vol. vi. No. 1 and No. 2 of Hayden's reports has just been issued by the Department of the Interior. No. 2, contains the Birds of Nevada, North American Moths by Grote, and much very interesting paleontological matter. No. 1, has the account of the Rocky Mountain Flora by Gray and Hooker.

ANNUAL REPORT OF THE CHIEF SIGNAL OFFICER OF THE ARMY TO THE SECRETARY OF WAR.—As we recently noted, among the silliest of questions is that raised by some of the leading newspapers, Of what use are expeditions to the North Pole? No one knows of what use to humanity any new fact may be. One cannot go into any unknown region, or enter any unknown field of research without stumbling on some new fact. What use we make of this new fact we cannot tell till we get it. As regards Arctic research the probabilities in favor of useful facts are greater than we might expect from any other part of the world. Our climate depends wholly on these Arctic wastes. Did they not exist, the Northern United States might be but a desert waste. The heated moisture of the tropics is forced to rise by the pressure of the heavier cold waves from the Arctic, and the condensation of the moisture by the meeting of the warm and cold currents gives us our rains and snows. It is of immense importance, especially to us as cultivators to know all about the weather. We all know how great has been the advantage to us of even the daily prognostications; how much more should we be benefited if we could see for a week or a month ahead. We do know now the main principles of climate, and the great relation which these ice fields bear to it. There is nothing improbable in that when we shall know more of them in detail we shall be able to get this exact knowledge. Even this present season, with its mild winter so far, was clearly foreseen when earlier it came to our knowledge from some of the Arctic expeditions, that the great ice fields had pressed much further westerly than usual. The natural consequence of this must be that the warmer atmosphere of the Gulf Stream would also press further west than usual, following the retreat of the ice, and necessarily modify the usual severity of winter.

It is just in this direction that we have to collect the exact facts on which to build a true science in meteorology.

The signal officer well sets forth in this report the value of this Arctic knowledge. He says:

"The study of the weather in Europe and America cannot be successfully prosecuted without a daily map of the whole northern hemisphere, and the great blank space of the Arctic region upon our simultaneous international chart has long been a subject of regret to meteorologists. I was, therefore, pleased to have an opportunity, with your permission, to carry out the promises of my predecessor, and to co-operate with the International Committee on Polar Research, which has during the past two years organized a system of stations in both the Arctic and Antarctic regions.

"These stations will conduct simultaneous hourly or bi hourly observations in meteorology, magnetism, and tides, and special observations on gravity, auroras, earth currents, earthquakes, &c. The general object is to accomplish by observations made in concert at numerous stations, such additions to our knowledge as cannot be acquired by isolated or desultory traveling parties. No special attempt will be made at geographical exploration, and neither expedition is in any sense an attempt to reach the North Pole. The single object kept in view is to elucidate the phenomena of the weather and the magnetic needle, as they occur in America and Europe, by means of observations taken in the region where the most remarkable disturbances seem to have their origin."

HORTICULTURE OF BOSTON AND VICINITY.—By Colonel Marshall P. Wilder. It is surprising what a wonderful amount of work Colonel Wilder has done for one of his years. The writer of this was talking of Colonel Wilder with the venerable General Patterson a short time before his death, and happened to say he was about entering his eighty-third year. "Oh! nonsense," remarked the General, "tell him he is but a boy compared with me." One might surely think Mr. Wilder was nearer the boy than the patriarch judging by the work which he does. Here before us is a pamphlet of eighty-eight pages, giving a history of Horticulture about Boston and vicinity from its first settlement to the present time, and which must have cost a great amount of research to say nothing of mental labor. Governor Endicott bought 250 acres of land for 500 apple trees in 1648. The first colonists under Governor Winthrop had fruit-seeds of all kinds, as part of their cargo. This is among the first facts dwelt on by Mr. Wilder, and he goes on through all the records that can be obtained to the present day. All the public spirited citizens of Boston, and not merely those devoted to horticulture, should be proud of this work. It makes a valuable chapter in Boston's local history, one that will be the more valuable with every year that rolls over it; and the city may well be as proud of this one of its merchant princes, as horticulturists everywhere are to have him in their ranks.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

APRIL, 1882.

Number 280.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Just now the newspaper wits see in Oscar Wilde a shining mark. They have their fun at the æsthetic craze, and their little giggles go the rounds. Perhaps the philosophy of Mr. Wilde has been run to the extreme by would-be fashionable people. There are always some whose cravings for social distinction outrun good sense—idiotic people, whose only notions of taste and culture are to do that which some one else does, and whose efforts naturally result in poor counterfeits of excellent originals. So far as the jokes of the scribes, and the satire of "Patience" hit these people, no one need care who is hurt. But this ought not to blind sensible people as to the real objects of Mr. Wilde's work. He sees that the world is beautiful, and that to join with nature in the culture of beauty, is the noble work of man. But there is a time and place for all things. It does not follow because we assent to this principle, we need discuss whether a pigsty should be built after the Norman or the Grecian style; whether the street-sweeper should study whether his mud pile would be better in a conical than in a square heap; or whether a lady with a sunflower on her bosom is more becomingly ornamented than if a bunch of humble violets occupied the honored place. But it does follow

that the humblest home is more enjoyable, and the humblest person more agreeable, when in proper time and in proper place, beauty is cultivated as it should be. Especially is this principle acceptable to gardening people. The vines and climbers around the cottage door; the window-sill and the window-jambes crowded with humble pot-plants, or bearing the brackets or hanging-baskets, from which the trailing plants depend; the little front yard, with its roses, shrubs, or choice dwarf tree—any of these compared for an instant with the miserable hovels too often seen, is enough to make one embrace the most aggravated forms of Wildeism, stupid conventionalities and all, in preference to the utter barrenness so profusely observed in every walk around. Even the best of us may do more in garden beauty than we do; and, very often, at little cost of either money or of time. Let us, at this season of the year, give a little thought to our surroundings. The little taste displayed in even arranging properly a few native flowers from the woods, will not be lost on the character of the planter. He will himself feel that he is a better man after his work is done, and his neighbors will think the more of him that he gives some attention to this æsthetic work.

With this seasonable hint as to the wisdom of garden adornment, we may add a few on mere practical matters of detail. The garden is made

up in the main of trees and shrubs, lawn and flower-beds. Of tree-planting we have said so much in the past that even the "line upon line, precept on precept," for the necessity of which there has been so many sermons preached, seems stale doctrine. It may, however, be as well to say that to prune out the weak shoots, leave the strong ones, and press the earth about the roots as firmly as it is possible to press it, are among the secrets of successful planting.

Not to let the roots dry for an instant between taking up and planting, everybody knows, but everybody don't do it; in fact, everybody deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots; and think all was right,—or heel in for a day or two, by just throwing a little dirt over the roots. This is a little good; but everybody's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days' value out of it, and thus he suffers more than if he had done nothing, because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches, very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or, at most, just "kicked" down. "It is only temporary," very few of the roots come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day,—everybody satisfied because he sees the roots covered,—really worse than if they had been exposed. We have no doubt that more trees are lost from imperfect heeling in than from any other cause whatever. Of course, if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

Place broad-leaved evergreens where they will get no sun in winter, yet away from where the roots of trees will make the ground dry in summer. Deep soil, but shallow planting, is all important for them. In transplanting, take care of the roots. Good roots are of more importance than good "balls." Balls of earth are useful in keeping fibres moist; but don't sacrifice the best fibres five or six feet from the tree for the few fibres in the ball at the base. When roots are rather dry, after filling a portion of soil, pour in water freely. After all has settled away, fill in lightly the balance of the soil, and let it rest for a few days. This is as a remedy, not as a rule;

for watering this way cools the soil, ultimately hardens it, and in other respects works to the injury of the transplanted tree.

In your flower-beds, if the plants sickened last year, change the soil. Renovated earth is renewed health to consumptive flowers. Sow Annuals as soon as the ground is warm. Too early sowing and deep covering rots seeds very often. This is frequently the cause of one's seeds being "bad." Prepare flowers in their winter quarters for the summer campaign, by gradually inuring them to the air before setting out finally. Set out when all danger of frost is over. Don't set out a plant with a dry ball; but water well while in the pot an hour or so before.

COMMUNICATIONS.

PUBLIC SQUARES OF PHILADELPHIA.

BY WALTER ELDER.

The sketches of public gardens and private grounds which, from time to time, appear in the GARDENER'S MONTHLY, are, I am sure, read with pleasure by thousands. It is worthy of the cosmopolitan character of the magazine, that we thus get information of what is going on to the uttermost ends of the earth. It will do no harm to consider now a little of what is going on near the home of the GARDENER'S MONTHLY, in the public squares of Philadelphia. As often noted, they are a disgrace to modern civilization. Even people without a particle of taste have become ashamed of them; and the pressure from this source has resulted in at least a mechanical improvement in Independence Square, and the commencement of a similar attempt for Washington Square. Even here, no attempt whatever is done in the way of gardening taste. Trees are left which would be better away; others are taken away which might as well remain. They are pruned with a vengeance; or, that which should be thinned out left to offend. Insects, which any person of intelligence could control, are left to destroy the most valuable material, and things are planted so that they cannot live, or in places where they could not live even though the editor of the GARDENER'S MONTHLY planted them. There is no question but though special pains were taken to select from the million the most unfitted to improve or look after our city squares, the city money could not be more ignorantly or more wastefully squandered. Why is it that so intelligent an art as gardening should

fall into the hands of ignoramuses? Can any one tell?

[Our correspondent has not exaggerated the state of affairs. The city squares are in the Department of City Property, which means a very varied species of supervision. A Commissioner of City Property may be remarkably well fitted for some of those duties, and yet not know a maple tree from a cedar of Lebanon. For any thing he knows, a man who is able to distinguish a wheelbarrow from an express wagon is a first-class gardener, and the employment of such a one will seem to him all the more proper perhaps if he is able to command a few votes at election times; for even a commissioner is human, and will stretch a little to hold a fat office if he possibly can.]

The best remedy for the disgraceful state of things referred to by our correspondent, would be to place these small city parks under the care of the Park Commission. But the Commissioner of City Property, by virtue of his office, is a member of the Park Commission, and it might be that he would still be a "sub-committee" to superintend the squares. There would, however, be this advantage, that a body of men with more intellectual pride than a mere "City Commissioner" is supposed to need, would be responsible for the disgrace.—Ed. G. M.]

A BLUE BEDDER.

BY W. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA.

In bedding, some of the principal points seem to be often lost sight of. One is in the use of plants dissimilar in height, and that cannot be trimmed to it. If flowering plants are used in conjunction with foliage, the lowest grower should be chosen, as foliage can be trimmed to any height almost; but flowering plants can only be pegged down, and many of them do not well admit of that.

Let us take as an example W. D.'s bed, where he wants to represent a flag, red, white and blue, and use C. W. Warde's plants. The first point is to look from what point this bed is to be most seen, and place it so that the design can be best distinguished; the lowest side to that point; now, by the use of *Ageratum Mexicanum*, the highest will be closest. This plant grows two feet, pegs badly, and will be one foot higher than the others, *Centaurea* and *Achyranthes*, and the effect is lost and confused, as an even surface is indispensable to show this design. The *Agera-*

tum, John Douglas, is a low, compact grower, and will show a compact mass of blue the whole season if treated properly; there is no better blue—is one of our best bedders. I never strike them sooner than a month before I use them, as they are very liable to red spider, and if put out old and affected with them, they soon burn up and make a poor show. Let the cuttings be put in soft a month before use, and they will be one mass of blue in a short time. There is no doubt but the *Ageratum Mexicanum* is good in ribbon lines.

Browallia, recommended by C. E. Parnell, is a plant growing one and a-half feet; flowers late and small, with much foliage, and will make a very poor show of blue. Now, if W. D. does not get his bed to show an even surface, the effect will be lost, and like many designs, we have to be told what it is, before we can tell what is meant by it.

It will never do to plant and expect that lines, &c., will be complete without frequent trimmings. When plants are growing rapidly, I look over them once a week, and see if leaves or shoots are getting out of place, and have them trimmed; never wait till you see them in disorder, so that when you trim you take the most beautiful part of the foliage; in fact, never allow them to grow so that trimming will be noticed.

NOVELTIES.

BY EDWARD KOETHEN, PITTSBURG, PA.

It is difficult for purchasers who are compelled to buy by catalogue to judge of the value of horticultural novelties, and probably always will be so. Many new things are thrust on the market with what seem to be the best of recommendations, and are advertised in all available ways, which have only been tested in one locality, and in many cases not in this country at all; but even in this country the climate is so varied that but few things do well and are valuable acquisitions all over the States. Yet the demand for novelties is so great that dealers are compelled to buy most of these much-heralded varieties, and grow them for sale, until they are either admitted among the standard articles, or are rejected as worthless, and in most cases they are catalogued at high prices, with their original descriptions, without first being tested at all. Thus the purchaser who buys from these dealers, is no more certain of getting a good thing than the dealer was, and the public it seems

will never learn that the most advertised articles are not necessarily the best. Now, here comes in one of the great uses of the GARDENER'S MONTHLY and other similar journals. By reading comments on these novelties, from different persons in different localities, we are enabled to decide on their true worth.

It is with these thoughts that the writer decided to speak of a few of the newer, or poorly appreciated plants which are in the market at the present time. Among the newer Abutilons, none better deserve mention than *A. Darwinii*. This beautiful plant is too free a bloomer to be a rank grower. Planted out in the spring it will be a continual mass of bloom, from planting time till the severe frosts destroy it in the fall. It is as hardy as a geranium, and seems to delight in dry, hot weather. It is delicate in color and graceful in habit, and sells well in spring, as it is sure to be in bloom at selling season. *A. Snowball* is the best white one we have seen, and is an improvement over *Boule de Nieve* in being more compact in habit and a free bloomer.

Of the new Geraniums which Mr. Thorp sent out last fall, Richard Brett has proved the best with us. We also tested three varieties of *Acalpha* this last summer, as bedding plants, and are well pleased with the result. For though Mr. Henderson asserts in his "Handbook of Plants" that *A. tricolor* is the only one worth cultivating, we find by test that *A. marginata*, *A. mosaica*, and *A. Macafeeana* are not only worth cultivating, but that they are real valuable acquisitions to our list of bedding plants. *A. marginata* is the strongest grower of the three. The foliage is ovate acuminate with long petioles. In color the leaves vary from dark green to a reddish tinge, with dark red veins; the margin is shaded with a band of light colors, varying from bright crimson and pink to yellow. In large specimens they measure nine inches in length and five in breadth. *A. Macafeeana* is next in rapidity of growth; its leaves are cordate and very irregular, often having deep folds in them. The larger ones are often eight inches long and six inches broad. They vary in color from dark bronze to bright red, blotched with yellow and crimson. *A. Mosaica* is a dwarf grower, but is probably the best of all. Its leaves are variegated in rectangular and irregular blotches of rose, yellow, pink and bronze. The yellow usually being the predominant color. They also have a tendency to curl downward. There was a bed of this variety planted out in

the Allegheny parks during the last summer which made quite a striking appearance.

In the way of double Petunias, we have seen nothing to beat Charm, for robust habit, good shape and freedom of bloom. Two *Begonia rex* varieties, which are new to us, promise to become valuable for cutting leaves for floral work, besides making handsome plants. Their leaves, when full grown, are never too large to use for baskets. There is but little difference between them in appearance. Both have a peculiar gloss, such as we see in shells, and less hair on their surface than we find on the old rex varieties. Indeed, the probability is that they are a cross between the rex and the flowering varieties; they seem to be free bloomers. Their names are Louise Cretine and Countess de Thelluson respectively. The former has a reddish shading in the leaf, near the centre which the other does not possess. The latter is the freest grower. *Bouvardia A. Neuner* is, we believe, all that is claimed for it.

EDITORIAL NOTES.

BLOOD-LEAVED TREES.—The three best are perhaps the Blood-leaved, or Schweidler's Norway Maple, the Purple Beech, and Purple Birch.

CERCIDOPHYLLUM JAPONICUM.—This, a correspondent of the London *Garden* found one of the finest forest trees of Japan.

SCHIZOPHRAGMA HYDRANGEOIDES.—There was a difference of opinion expressed in our columns a few years ago, as to the ornamental merits of this plant. Mr. Maries, the Japanese traveller, tells the *Garden* that "the most beautiful climber is *Schizophragma hydrangeoides*. This does always best on a living tree with a long branchless trunk, and requires to be old before it produces flowers. I have seen trees perfect masses of large Hydrangea-like blossoms."

THE LARGEST NORFOLK ISLAND PINE.—This beautiful denizen of Eastern greenhouses is hardy in those parts of California where there is little frost. The finest one in the State was in the Post Office yard of San Francisco. It had to be removed for improvements, and though only thirty feet high, those who undertook it, were not equal to its success.

IMPROVEMENT OF AGRICULTURAL GROUNDS.—A large number of Agricultural and similar socie-

ties have permanent exhibition grounds, and it is sad to reflect that these bodies, which one would suppose to be leaders in art and culture in true taste, generally have the most disgustingly neglected properties that it is one's misfortune to meet with. They give "premiums" for works of art and improvement, and present themselves the most wretched examples of that which they profess to encourage. Occasionally there are some attempts at cultural decency, and we have pleasant recollections of one in New Orleans as we write; but these instances are rare.

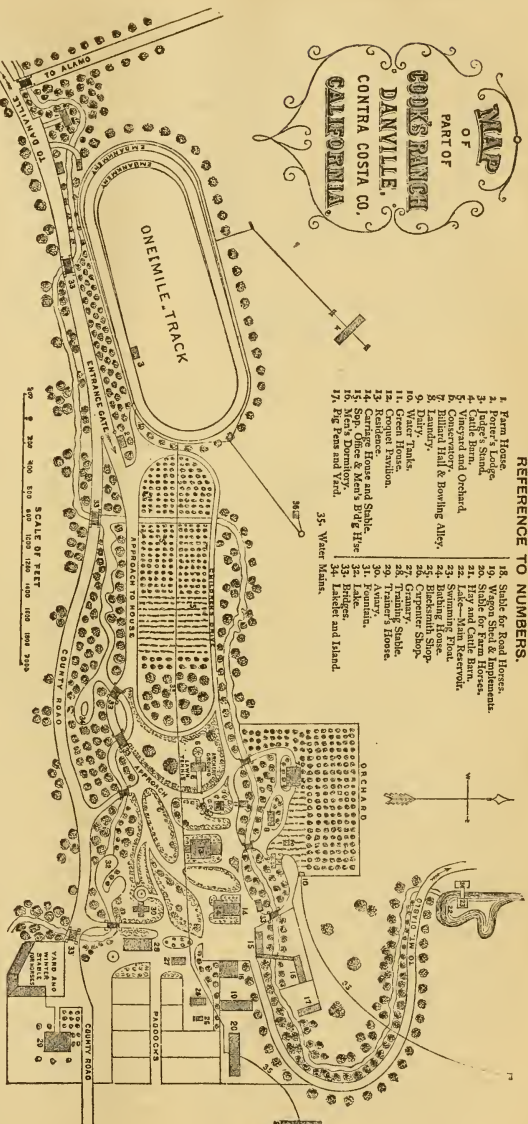
We have a plan of an improved place before us as we write, which, though somewhat of a private rather than a public enterprise, suggests these thoughts, and in the hope that others may profit by it, we have had an engraving of it made expressly for the GARDENER'S MONTHLY. It was designed by Mr. Wm. Webster, the eminent landscape gardener, of Rochester, N. Y.

SCRAPS AND QUERIES.

TREES AND SHRUBS FOR THE SEASIDE.—"W. C.," Bayview, Gloucester, Mass., writes: "Will you please be so kind as to inform me what kind of shrubs I can find hardy enough to withstand our extreme peculiar climate, on the north-west side of Cape Ann.

"Such plants as Lilacs, Syringas, Forsythia, Deutzia, Althea, Ribes, Guelder Rose, Wiegelia, Japan Quince; also, the Norway Spruce, Common White Pine, Austrian Pine, all winter kill.

"I think it is more from the effect of the vapor rising from the ocean in extreme cold



weather, than from the intense cold, as the above-mentioned plants all thrive when planted either on the south-east side of hills, or anywhere under shelter within two or three hundred feet from the water; but as soon as ever they get tall enough for the north-west blasts to strike them, down they go."

[It is the salt in the vapor, blown into the plants by the keen sea-breezes as much as the wind itself, which does the damage. The following list of plants is of such as do not mind a salt atmosphere so much as others, and we should select from it, for experiment, in situations suggested:

<i>Acer campestre</i> ,	<i>Amorpha fruticosa</i> .
<i>Allianthus glandulosa</i> ,	<i>Azalea viscosa</i> ,
<i>Alnus glutinosa</i> ,	<i>Berberis vulgaris</i> ,

<i>Alnus maritima</i> ,	<i>Carragana arborescens</i>
<i>Aralia spinosa</i> ,	<i>Cephalanthus occidentalis</i> .
<i>Amelanchier botryapium</i> ,	<i>Chionanthus Virginica</i> ,
<i>Betula populifolia</i> ,	<i>Clethra alnifolia</i> ,
<i>Catalpa bignonioides</i> ,	<i>Fothergilla alnifolia</i> ,
<i>Celtis occidentalis</i> ,	<i>Itea Virginica</i> ,
<i>Nyssa multiflora</i> ,	<i>Myrica cerifera</i> ,
<i>Populus alba</i> ,	<i>Prinos verticillata</i> ,
" <i>angulata</i> ,	" <i>arbutifolia</i> ,
" <i>monilifera</i> .	" <i>floribunda</i> ,
<i>Prunus Americana</i> ,	<i>Viburnum nudum</i> ,
" <i>chicasa</i> ,	" <i>prunifolium</i> ,
<i>Quercus nigra</i> ,	<i>Andromeda calyculata</i> ,
" <i>obtusiloba</i> ,	<i>Arctostaphylos uva-ursa</i> ,
" <i>tinctoria</i> ,	<i>Kalmia angustifolia</i> ,
<i>Salix alba</i> ,	<i>Leiophyllum buxifolium</i> ,
" <i>Russelliana</i> ,	<i>Pinus inops</i> ,
" <i>vitellina</i> ,	" <i>mugho</i> ,
<i>Tamarisk Africana</i> ,	<i>Prinos glaber</i> ,
" <i>Indica</i> ,	<i>Yucca filamentosa</i> .
" <i>tetandra</i> ,	

—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

THE ROSE-GROWING CRAZE.

BY PETER HENDERSON.

The readers of the GARDENER'S MONTHLY in remote rural districts are unconscious of the extent to which the culture of roses is extending in and around our large cities. In consequence of the extraordinary prices obtained for rosebuds during the past two or three years, not only have the regular florists used their large profits in extending their greenhouse structures for that purpose, but the fabulous reports of the profits of rose-growing has excited the cupidity of many capitalists in the vicinity of New York, Boston and Chicago, and in all probability in the other large cities of the Union. These men have an abundance of means, and begin on a scale usually at which the ordinary florist, who had to climb his way up, ends; so that we have already in the vicinity of New York at least a dozen establishments for the forcing of rosebuds in winter, owned by men who count their capital by millions. These gentlemen, of course, know nothing practically about the business, relying altogether upon their gardeners for success;—for who ever heard of a millionaire florist?

Whether they do succeed or not in making a profit of a few thousand dollars a year is not vital to men who count their income by the hundred thousand; yet it is curious with what interest the rise or fall of a few cents in the rose market is regarded even by them. New Jersey has more than her quota of these millionaire florists. Already we have four in Madison, one in Summit and two in Orange, New Jersey, and it is said that there is as much interest manifested by them in the prices at which, in the technical slang of the flower-shops, "Cooks," "Jacks," "Mermets" and "Perles" are quoted in Broadway, as is evinced in Wall Street in "Wabash," "Lake Shore," "Erie" or "Central." It is true that one, at least, of these gentlemen gives all the profits that accrue from his roses to charitable purposes; but it is feared that he has few imitators among his compeers in this particular; for the motive is the same as in all other investments—to get the largest profit possible from the smallest amount of money involved. A wholesale dry goods merchant, or a manufacturer, doing a business of a million dollars a year, is amply paid by a net profit of five per cent.; but when he is given to understand that some illiterate digger of the soil, by an investment in rose-growing of \$10,000, gets a net

profit of twenty-five per cent., he foolishly imagines that a larger amount of capital invested will bring corresponding profits. Such, at least, seems to be the opinion of many capitalists; for within the past twelve months I have been consulted by at least a score of gentlemen about to embark in the business of rose-growing, and I have no doubt others in the trade have had the same experience. Only last week a gentleman entered into negotiations with a greenhouse builder in Jersey City to construct at his country residence, some sixty miles from New York, 600x20 feet, or nearly 15,000 square feet of glass, as a "beginning," which, furnished, heated by hot water and stocked, will cost not much less than \$15,000. It is true that many of these amateur florists will get their fingers burnt, and will not only never realize a dollar on their investments, but will work at a loss; yet enough of them will succeed to give zest to the risk, for at present prices, when success is attained, the profits are so great as to produce the present craze on the subject—a "craze" that probably will result exactly as the *Morus Multicaulis* did in 1840, or the grape vine fever in 1865. We all know the disastrous results of these speculations. Hundreds thought there were "millions" in it, but found, to their sorrow, that they were thousands out. So, we predict, will be the result of the rose mania, for an over-supply may quickly change the fashion. For, assuredly, when the plebeian Smiths or Browns can buy rosebuds suited to their limited means, the Flora McFlimseys will turn up their aristocratic noses even at the rose. All experience shows that, in the perishable commodities of fruits, flowers or vegetables, whenever an over-supply floods the market and brings down the prices below a paying level, less is sold than when they bring a fair price. Two years ago, in June, strawberries and cabbage in the New York markets got so low as not to pay even the cost of marketing. The result was that hundreds of loads had to be taken back and dumped in the manure yards, as they could not be disposed of at any price. Some thirty years ago peaches one day fell down to twelve cents a basket in Washington Market, New York, and would not sell at that. In those days the crop was perhaps held by a score of dealers only. They got their heads together and decided to destroy every peach in the market. It was done. A scarcity was produced, and in twenty-four hours peaches went up to \$1.00 per basket.

The leader in the movement had no doubt been a disciple of Adam Smith, and had wisely studied the laws of supply and demand.

The present excitement in rose-growing is no doubt largely due to the unprecedented prices realized this winter, which has been caused in a great measure by the unusual heat and drought of last autumn, which weakened in many cases, and in others entirely destroyed, the plants that would have been used to produce the crop of flowers. This, together with a brisk demand, has resulted in profits which it is unreasonable to expect can ever be long continued in any legitimate business.

STEAM HEATING.

BY W. C., BAY VIEW, MASS.

I am glad to see the subject of steam as a heater being discussed through the columns of the MONTHLY, and should it prove as great a boon over hot-water as hot-water has over the old brick flue, it will be a great relief to gardeners and their assistants. But the main question is will it be as economical as regards fuel, and can boilers be made that will keep up steam say from 10 o'clock, P. M., until 6 o'clock A. M., without attention? If this can be done then we may say good-bye to hot water; if not, then we must understand the management of hot-water boilers better than is now generally understood. The great fault with most makers of boilers is misrepresentation, *i. e.*, they invariably represent a boiler to be capable of heating, say 1,000 feet of four-inch pipe, when under ordinary circumstances it will heat about 700 feet. Another fault, not generally understood, is in not putting enough pipe into greenhouses. Invariably you will find greenhouses, say one hundred feet long by twenty to twenty-five feet wide, with eight rows of piping—that is, four pipes on one side and four on the other. Now, to think that, with that amount of pipe you can maintain a temperature of 65° in zero weather, is entirely out of the question, no matter what kind of a boiler you use. The fact is, put in four more rows of pipe, and a boiler capable of heating the contents of said pipe, and then you will get satisfaction.

HINZE'S RED AND WHITE CARNATIONS.

BY AUGUST D. MYLIUS, DETROIT.

Mr. Hinze tells me, since the January number of GARDENER'S MONTHLY appeared, he receives

scores of letters inquiring about his carnation seedlings. And as Mr. Hinze is not accustomed to English writing, he is not able to answer these inquiries, but would be glad for me to state in your magazine all about the above. The seed was imported from Europe some years ago, and as soon as the merits of these plants were known the florists around Detroit City would not grow other varieties, except for the sake of other colors. Mr. Hinze tries new plants every year, but these are his best. Any other florist would have advertised these plants and sold them for high prices. Mr. Hinze did nothing of the kind; he raised a large stock and had the best of the flower market for two years or more. Since then all about Detroit have them, but very few florists outside of Detroit knew of their existence till the appearance of little article in January MONTHLY. They bear double as many flowers, and are very healthy plants in all seasons, and are stout and strong growers. I had 3,000 put in this winter for cut flowers, and I can speak from experience. I am propagating 6,000 for next year, all for cut flowers. I found one house of these pay better than anything in the flower line. The single flower is very large, larger than of other varieties, and they are pleasantly scented. The Red is a very bright pure red, and the White a very large pure white.

HOT WATER BOILERS.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

During many of my summer rambles among the horticultural establishments of this vicinity I have noticed a tendency to discard the old smoke-flue, and to use hot-water heating apparatus in houses of any pretension. Many florists are puzzled to know what boiler to use for the heating of water. There are now so many kinds, sizes, shapes, and patterns, and each inventor claiming that his particular boiler is superior to all others, &c., that to choose between them is indeed a difficult task. What is wanted is a boiler that attains a rapid circulation, and, consequently, the quickest with which to heat water; at the same time burning but a small quantity of fuel. Hearing that several commercial florists in the neighborhood of this city were adopting locomotive boilers, I paid a visit to the extensive establishment of H. A. Dreer, at Riverton, N. J., who has had two in use the past winter, and gleaned the following facts

through the courtesy of the foreman, Mr. J. D. Eisele.

The boilers in use in this establishment are what are known as fifteen horse-power boilers with two and a-half-inch tubes, though a boiler with three-inch tubes would be better, if at all procurable. These boilers cost about one hundred dollars, and the necessary fixing, so as to make them adapted for greenhouse heating, costs some twenty dollars. So it may be counted that a good locomotive boiler can be procured and adapted to horticultural purposes for one hundred and twenty-five dollars.

This boiler, if properly set, will heat twenty-five hundred feet of pipe, besides a smoke-flue of seventy-five to one hundred feet in length. Last winter, which was a very severe one, fully tested the efficiency of these boilers. On the coldest nights, the fires were fixed up at 10 o'clock P. M., and were not touched until six the next morning. Each furnace consumed twenty-five tons of coal, making fifty tons for both boilers, and each boiler heated five greenhouses, one hundred feet long by sixteen feet wide, making sixteen hundred square feet of surface room.

It is well known that a locomotive boiler is the quickest with which to make steam, and therefore must be the quickest with which to heat water. With proper care it will outlast any other boiler, for, being made out of wrought iron, it possesses this advantage, that any of its parts can be replaced without much trouble.

ODONTOGLOSSUM CERVANTESII AND TRICHOPILIA SUAVIS.

BY W.

Anticipating "C. H. S.'s" reply to the inquiry of "F." regarding the treatment of the above, permit me to say that there have been two distinct plants offered by the importers as *Odontoglossum Cervantesii* the past season. The first with light, pea green, soft, roundish, wrinkled pseudo bulbs was not true, but was *Odontoglossum nebulosum*, and identical with the *O. nebulosum* imported by the same party two years ago. The true *O. Cervantesii* imported by the same firm subsequently, has small, rather dark green, flask-shaped pseudo bulbs, often spotted with brown near top, and resembling in growth and inflorescence, *Odont. Rossii*. This is scarce and rare, but much easier to grow and flower than *O. nebulosum*, not being as impatient of any excess of moisture or of sun heat. I have it with

flower spikes soon to bloom. I have not succeeded in blooming *O. nebulosum*. All the *Trichopilia suavis* I have seen were either touched with frost before arrival and subsequently perished, or excessively dry. The latter are now coming out well, thanks to good care and generous treatment. It is perfectly wonderful what a drying and wasting away some of these epiphytes can survive. There are said to be two varieties of *Trichopilia tortilis*, and I supposed I had both the summer and the winter blooming varieties; but I find that by the same treatment the plants that bloomed for the past two summers are in bloom this winter also, and I conclude the difference is only due to the date of importation. Some varieties are more distinctly marked than others, however.

LUCULIA GRATISSIMA.

BY A. J. E., SOUTH AMBOY, N. J.

This beautiful plant is worthy of a place in every collection however small it may be. None but those who have seen a specimen can form any idea of its beauty, when covered with its immense Hydrangea-like trusses of rosy pink flowers, as fragrant as a *Heliotrope*; in fact it fills a whole house with its perfume. There is in Mr. Geo. Such's *Camellia* house, South Amboy, N. J. a magnificent specimen planted out amongst the *camellias*. All those who saw this plant just before Christmas will forever think of its beauty. It lasts for several weeks in bloom, and is in great demand by the florists, which makes it more valuable, at that season of the year especially. Why is it that this plant is neglected so long when it is without doubt one of the finest plants in cultivation, and so easily grown when planted out?

CULTIVATION OF EUCHARIS.

BY W. RHIND, CANANDAIGUA, NEW YORK.

For the third time I have succeeded in flowering this valuable plant in greenhouse temperature, and as many persons own it who only have a greenhouse, with your consent, Mr. Editor, I shall briefly state how I do it.

About the end of March I shake all the soil off the plants, preserving the roots as well as possible, place an inch of drainage in large pots, covering with some rough material—tobacco stems suit well. Grasp as many of the bulbs by the leaves as the pot will hold, each clear of

the next a fourth of an inch, then work the soil in among the roots, tapping the pot on the bench as the work proceeds; by so doing the soil is made firm about the roots without the pounding-stick, which in this case would break the roots. Common potting soil is used, as rich compost will rot the roots before they commence growing. Three stakes are placed around the plant, on these a string to support the leaves; water with warm water, and the operation is completed. Pots of any size may be used, from six inches up. After they get fairly to growing use liquid manure freely until the end of August; by that time they should have made the season's growth. Rest them by withholding water, only giving enough to keep from wilting. In a month or six weeks they will send up their flower stems; then resume with liquid manure while the flowers last, afterwards watering sparingly. The growth of young leaves will surely damp away at a temperature of 45°. The foliage must be kept clean at all times by the frequent use of the syringe in summer and the sponge in winter.

MEDINILLA MAGNIFICA.

BY JAMES TAPLIN, MAYWOOD, N. J.

This fine growing *Melastomaceous* plant, being a native of the hottest part of the world, requires a very strong heat at all times and also liberal feeding. It can either be grown in a mixture of peat and loam, or a good turfy loam, with some well-decayed manure. The main fault is that it makes too large a plant for a reasonable sized house in a short time, as a plant from a cutting will be six feet or more through in one season. It requires abundance of water during the summer, both overhead and at the root, with plenty of pot-room in the growing season, and in the winter just water enough to prevent the foliage turning yellow. With plenty of heat and light it will show blooms at every joint. If sufficient room is available it may be cut in after flowering, the ball may be reduced, and it may be re-potted in the same sized pot and treated as before, but every cutting will strike in a strong heat; in fact, every eye will strike, which is probably the best way to grow it in a limited space, it being one of the strongest and freest growing plants in existence where a strong heat can be maintained.

NOTE.—*Trichopilia suavis* and *T. tortilis* are best grown in pots, in a mixture of sphagnum and peat, in a house ranging from 50° to 60° in

the winter. *Odontoglossum Cervantesii* is best grown on blocks, in about the same temperature in winter, but in summer grown in a north house and always kept wet. I have a number of these now coming in flower under this treatment. I would like to know if "C. H. S." has grown any of these plants, under tree; in the open air, and how they have succeeded?

GLAZING.

BY M. M. GREEN, LOUISVILLE, KY.

Having built a house with permanent rafters, and desiring to glaze it in such a manner that the glass could be easily removed in the summer, I stretched ordinary candle wicking from end to end of the rafters, letting it lie on the shoulder of the rabbet, and bedding the glass on this, not lapping it, but laying it with one end against the other and tacking it down with ordinary tacks, four to each pane. I have in this the closest roof in a range of eight houses glazed with putty. The work of removal, as any practical man will see, will be very light, with but little danger of breakage, and the work of re-glazing will be as light as at first.

RAISING CHINESE CHRYSANTHEMUMS FROM SEED.

BY W. FALCONER.

Dr. H. P. Walcott, of Cambridge, has succeeded in raising a large number of Chinese and Japanese *Chrysanthemums* from seed. Some of his seedlings are of good merit, especially a pale purple and a chestnut-colored Japanese, and a crimson and yellow reflexed Chinese flower. Now, raising seedlings of *Chrysanthemums* (*C. Indicum*) is no uncommon thing in Europe, but I have not heard of it before in America; still, seeds of it are advertised in some seedsmen's catalogues. Whence are the seeds obtained? From plants grown in the Channel Islands, the South of France and Algeria, but mostly from Algeria. But Dr. Walcott's seeds were raised, in 1880, in his own garden at Cambridge. This is the first instance of raising *Chrysanthemum* seeds in America that I have heard of; do any of your readers know of another?

The seeds were sown out of doors in July; they soon germinated, and by the end of August had formed nice little plants, which were lifted

and potted into four and five-inch pots, and nearly all of them blossomed during the last two weeks of October and the first fortnight of November.

The Doctor tells me that the plants from which he saved the seeds, at and after blooming time, were kept in the greenhouse, where the atmosphere was as dry as he could keep it, without using unnecessary fire-heat. He considers that a dry atmosphere is essential to success.

On December 17th, the Doctor told me he had recently returned from a visit to Georgia, and was assured there that the cultivation of the larger Chinese varieties was on account of their hot, dry, summer weather—an impossibility. He further told me that he did not think he should be able to secure any seed from his own plants this season, nor did he find any of the plants in the Southern States with perfected seed; the moisture of their Novembers seems to be as fatal to the ripening of the seed as our greenhouse conditions are.

HEATING BY STEAM AND WATER COMBINED.

BY JAMES BROWN, GARDENER, STATE FARM, LANCASTER, OHIO.

I notice in the *GARDENER'S MONTHLY* that the subject of steam heating for greenhouses is attracting a good deal of attention at present; and, if agreeable, I will relate our mode of heating with steam and water.

We use the ordinary four-inch cast-iron pipe, put up the same as for hot water apparatus; but in place of hot water boiler, we have a cast-iron tank, five feet in length and two feet in diameter, placed in north end of house, underneath the floor, below the level of the pipes. In this tank there is a coil of one hundred and fifty feet of one and one-quarter-inch steam pipe. The steam is brought from a main pipe in one of the buildings nearest to the greenhouse in the same sized pipe, inch and a quarter, the entire distance from boiler, seven hundred feet, with twenty pounds of steam pressure. We have about five hundred feet of pipe in this house, and raising this one and a-quarter-inch valve the thirty-second part of an inch, will make the water boil. You can readily calculate how much water this steam will heat by opening the valve to its full extent.

In reading Mr. Murdoch's article in the *MONTHLY*, where he tells about taking out two

thousand feet of four inch pipe, and putting in steam-pipe, I think he made a grand mistake, as he had the pipe on hand. And for all those contemplating putting in steam, I believe this mode of heating far superior, especially for those who have hot water in operation, because of it being more economical and safer; for in case anything should get wrong with the steam, you have the pipes in the greenhouse full of hot water, which will retain the heat much longer than in steam pipes, and is more economical because of the saving of fuel to generate steam.

A CHEAP PLANT STAND.

BY W. F. BASSETT, HAMMONTON, N. J.

We made a very effective plant stand for our front yard last summer in the following manner: A cedar stake two or three inches in diameter was driven into the ground so as to stand firmly and of the required height, a small piece of board nailed across the top and another piece a little larger nailed over this so as to make a substantial base, and a cheese box nailed to this. Then we filled the box half full by putting in a couple of inches of sand and sphagnum over it. The whole was then covered with the pendant lichen which grows on our swamp cedars, so as effectually to conceal the materials used in its construction, and the box filled with plants in pots—tall ones in the centre and smaller ones around them with trailing plants to hang over the sides. It was shaded by trees during the hotter portions of the day, and such plants as *Glechoma*, *Alyssum*, *Ivy*, *Othonna crassifolia*, &c., succeeded finely by merely pressing a handful of sphagnum around the base of cuttings and pressing them into the spaces between the pots.

MEDINILLA MACNIFICA.

BY MANSFIELD MILTON.

The first time I saw this plant in flower was at Craig House, Forfarshire, Scotland, and I do not know if I ever came across a plant since which left such an impression from first sight as this one did. A fine, large, magnificent specimen, growing in an eighteen-inch pot, had hanging from the points of its shoots large racemes of pink flowers,—a gorgeous sight. The plant, when not in flower, is ornamental, the leaves being large, smooth and of a dark green color.

As this plant produces its flowers from the previous year's wood it is necessary to have it well ripened, as unless this is attended to but few flowers will be seen. I have seen specimens of this plant grown, year after year, without ever a single raceme of flowers being seen, the mistake being in not ripening the wood sufficiently the previous year. It requires a high temperature to grow in. For soil, a mixture of peat and loam with plenty of sand is most suitable, and upon no consideration over-pot.

It holds good with almost all plants grown in greenhouses and hothouses, that those which produce their flowers on the previous year's wood should not have too much root room, while such as produce their flowers on the present year's growth will bear more liberal treatment in this respect. Unless with very succulent growing plants, very large shifts are not advisable with any kind.

RHYNOSPERMUM JASMINOIDES.

MRS. M. D. WELLCOME.

I have a very attractive climber with the above name that I think cannot be extensively grown, or I fail to find it in any of my catalogues, though from the largest floral firms in this country. It was sent to me about six weeks ago from Indiana, and it very soon began to throw out new shoots full of buds, and the main stalk has grown more than half a yard since it came to me and is in bud and bloom. The flowers are pure white, fragrant, and hang in clusters over the rich, dark green leaves which greatly resemble those of the *Camellia japonica*, though not so glossy. I have it trained on a small pot trellis, and it is very handsome.

CIRRHOPE TALUM MEDUSÆ.

BY A. J. E.

This is a very rare Orchid and seldom found in collections, and is a most singular plant. It has flowers in masses having the appearance of heads with long hairs hanging from them, these hairs being twisted about in a strange manner. It succeeds well on blocks of wood, or in a pot with rough peat and sphagnum moss, but I prefer the former and the flowers show to better advantage. If grown in a pot it is as well to keep the active part near the edge as possible, so that when in

bloom the flowers will be free from the pot, and it can be suspended to the roof of the house, and the flowers will be free from damp, to which they are very liable. It is easily grown in a warm house. The flowers are of a creamy white spotted pink. It is a native of Singapore.

SMALL GREENHOUSES.

BY J. C. C., PROVIDENCE, R. I.

It may be interesting to some who are not blessed with ranges of "glass-houses," and whose wants exceed their means, to have a trifle of the experience of one, who for three short years enjoyed a very small span-roof house, (only 12x12) and from which he gained not only much pleasure and recreation, but also a deeper knowledge of floriculture than constant reading would have given him in thrice that time. The greenhouse was situated in a large city, where yard-room is an expensive luxury; and few would have thought that so many plants could be grown successfully in so small a place. For six months before building the writer had contemplated a house, but his ideas, like those of most amateurs, were on a much larger scale than his plot of ground would allow. But finally he built a house which was so erected that, by taking out one end, it could easily be enlarged. The wood-work beneath the benches was double, so that no heat should be lost; three inches empty space between the outer and inner boarding. Although a filling of sawdust was recommended, it was never found necessary. The house was heated by three rows of four inch pipe, carried from a Smith & Lynch boiler, capable of heating 150 feet of pipe. The boiler was at first placed in a trench in a corner of the house and worked from the outside; but as this was found to be not only inconvenient but also unpleasant to work in severe or stormy weather, and as it was also difficult to keep water out of the trench, the boiler was finally placed in the cellar of the dwelling; the flow and return pipe being laid in a wooden box beneath the pavement. This arrangement worked admirably, although there was considerable heat wasted, but that was a small matter when we consider the ease with which the fire was run. In the winter of 1880 and 1881, which was as constantly severe as Philadelphia has experienced for many years, only two-and-a-half tons of coal were burned, the thermometer ranging from 40° to 50° Fah. at night, and from 60° to 70° during the

day. The fire was usually covered at eleven P.M., and not looked at until seven A. M.

At first the writer—like many other beginners—tried to grow anything and everything, but he soon found out that such a course was by no means practicable. Camellias and Azaleas did not enjoy a heat suited to Begonias and Marantas, or, in other words, plants that luxuriate in a temperature ranging from 50° to 65° could not be placed alongside those that enjoy stove treatment. So in the course of two years Camellias, Carnations and Roses gave place to Azaleas, Amaryllis, Geraniums, etc. And it may seem almost incredible to the readers of this article, who have had no experience with a small greenhouse, when the writer says that he had at times upwards of 400 plants in his house, some of them by no means small, but every inch of space was brought into requisition by means of shelving and iron brackets. The plants were kept from being drawn only by constant turning and rearranging, and although that pest, the green fly, would occasionally appear in the early spring, yet a couple of careful tobacco fumigations would be sufficient to smother him. The writer thinks that there are few who have five times his space who could boast of such a blaze of Azaleas, Amaryllis and Geraniums, the last named plant constantly in bloom from the first of December until time for bedding in the spring. The average time spent in this house for watering, repotting, etc., was one-and-a-half hours a day.

Fearing that this article is already too long for a corner in the GARDENER'S MONTHLY, and that the editor may think it an old story, which has been told too often, the writer will conclude rather abruptly, at the same time hoping that his experience may cause some one else to try a small house, and enjoy it until he is able to build one of larger proportions.

EDITORIAL NOTES.

JUSTICIA CALYCOTRICH. — A plant which is much more valuable than is commonly supposed is *Justicia calycotricha*. When cut the inflorescence is most useful for vases, and it lasts in beauty a considerable time. The flowers are very numerous and of yellow color; they do not individually last long, but open in succession. Not only is the corolla yellow, but also the calyx, which is formed with long slender lobes about equal to the corolla in length. These give a character to

the inflorescence. In the Cambridge Botanic Garden this plant forms quite a useful and ornamental feature in the stove. There it grows in the soil beneath the stage and pipes, quite hiding the latter with luxuriant foliage. Hundreds of flower heads have been produced during several weeks, and almost always it may be found in bloom. It grows better as above situated than in pots. If pot culture is desired the chief consideration is to overcome so far as possible its naturally tall habit. To this end it should be cut back periodically, and to form a specimen several may be planted together in a pot. It is fond of moisture, and to produce the best result strong shoots must be grown for flowering. This is the *Justicia flavicoma* of Lindley, under which name it is sometimes known. It is a native of Brazil.—*Journal of Horticulture*.

DINNER TABLE DECORATION.—This is a matter which many take great interest in, and to which they devote much attention. Like all other fashions it needs to be changed to retain admirers. When the numbers at dinner vary and the tables are changed in size accordingly, plants of different size can be worked in, and a change of the plate or chief centrepieces affords the same chance. Alterations of the kind are always favorable to those who decorate, as none of us like to have the table the same night after night before the same company.

As a rule lightness is always appreciated. Plenty of green with a few bright colors is generally most effective. Small glasses are, to our mind, much more pleasing than spreading the decorations on the cloth, and the main pieces should always be done well. Of these we have arranged many, but one of the best we had recently. The stand has a massive silver base some two feet wide, and on this stands for figures holding a flower basket over their heads. This basket is about eighteen inches across, and is sometimes filled with plants and sometimes with flowers. On the occasion we refer to there was a good plant of *Cocos Weddelliana* in the centre. A quantity of a small green *Selaginella* covered the pot of this and filled the basket. As a fringe *Adiantum farleyense* was used, and white Chinese *Primula* and Roman *Hyacinth* spikes were cut and placed, not too closely, over the surface of the green. The effect of this was more pleasing than any centre we have made. The *Primroses* and *Hyacinths* looked as if they were growing on the little green mound, and the graceful *Palm* spreading over the whole made

the combination complete.—*M. W. in Journal of Horticulture*.

SCRAPS AND QUERIES.

STEAM HEATING.—"T. J.," Hartford, writes: "I notice, in your February number, an article on steam heating, by Mr. Taber, in which the author asserts, as a well-known fact, 'that more heat is obtained from one two inch pipe than from two one-inch pipes.' Now, I am using one-inch pipes under the impression that two of them present the same heating surface and therefore give as much heat as one two-inch pipe, besides taking only one-half the quantity of steam and consequently consuming less fuel. Will Mr. Taber please inform me through the columns of your MONTHLY, whether I am right or not, and if not, why not?"

STEAM HEATING.—Mr. Mylius, Florist of Detroit, says: "Mr. Taber, of Detroit, writes an able article about steam, and he states what I know are facts. I think few will use other than steam for heating, in time. Mr. Taber has the same size boiler as mine, but I heat double as much glass with mine as he does with his."

CAMELLIA BUD DROPPING.—"W. F.," Sandusky, Ohio, writes: "I have a *Camellia* (double red) which has about fifteen buds. They seem to be on a standstill, and I think they should be opening now. I have had them this way before when they finally dropped off. I had a double white one in full bloom, about a month ago; they both had the best care, their leaves being sponged every day since last fall. I have them in a front room, where geraniums, roses, azaleas, heliotropes, and other flowers are in bloom; average temperature about 60° Fahrenheit; hard coal stove in adjoining room. No buds dropped off as yet. If you could advise me what to do, to save the buds and get them to bloom, I shall be under many obligations to you.

[There are so many reasons why *Camellia* buds drop, that without seeing the plants no one could give a reason in a special case. If for a long time the plants have been in the shade and suddenly removed to bright sunlight, they may drop. If sulphuric acid gas, from bad coal, attacks them, they may fall. Or they may fall from anything which injures the tips of the roots—that is fungus, stagnant water, or dryness of the soil.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

PLUM STOCKS FOR PEACH TREES.

BY W. F. HEIKES, HUNTSVILLE, ALA.

Noticing the interest manifested in your pages of late, upon this subject, I am tempted to give a few facts from my experience with peach on plum in the nursery. As long ago as 1866 my attention was called to an experiment made by Mr. David Miller, formerly of Carlisle, Pa.—a gentleman well known to horticulture—on the Sand Hill Plum, known locally as the Sand Hill Cherry (*Prunus pumila*), common to the sand hills of Kansas, Nebraska and the Northwest. Mr. Miller had bearing peach trees on this stock at that time, and wrote me very favorably of the result. I made a determined effort to get the pits of this plum, but there was so much confusion concerning the name and so much procrastination in the minds of those to whom I applied, in neighborhoods where I supposed them to abound, that I did not get any until I went for them myself, and then with difficulty, as no one seemed to know them by any name that I had ever heard. Finally, it was found on Saline Fork, Kansas, after following an old man several miles over the sand hills, in a doubtful way, after what he and his neighbors called the Mountain Cherry. I procured pits enough to make an experiment, in view of their propagation in the nursery. The peach buds set well and they made a healthy growth, but what with the difficulty of getting the pits, the slender growth of the seedlings, and their disposition to drop their foliage before budding time, I was forced to abandon the project.

I also experimented with Myrobalan as a stock but found it very unsatisfactory. The buds set well, but their growth was very irregular, and whilst there was an occasional tree that seemed healthy the most of them seemed stunted in growth and sickly in foliage. I never tried the peach on Horse Plum or St. Julian, because I could not grow plum trees upon them profitably.

The subject of the plum stock for the peach held its fascination for me in view of its probable value in exempting the peach from its great foes, the yellows and the borers, and the prospective prices for the young trees should I succeed. Upon taking the management of the nurseries here I noticed the striking similarity of the foliage and habit of many of the seedlings of the Wild Goose Plum to the peach, and I was induced to try the peach upon the Chickasaw of this particular type. After growing trees upon this stock for three years in succession I felt so strongly convinced that I had found the true plum as stock for the peach that we budded over thirty thousand of them in the summer of 1880, and as they have done each year, they grew very perfectly and regularly—a little more stocky and better branched, although not quite as tall as the peach on its own roots. This stock makes handsome fibrous roots, on our soil, and carries its size up well to the peach, completing a perfect union.

I have noticed also that this stock is influenced much less by drouth than any plant in the nursery. The past summer was remarkable for its great heat and severe drouth, so trying to nurserymen who had much to bud; there was not a day in which it could not be budded, and the buds put in lived, whilst buds inserted in peach stocks at the same time perished. It is strictly healthy every way, holding its foliage and continuing its growth until chilled by frost, equaling in this respect the Mahaleb Cherry. After my experiment of the first year with this stock, my expectations of its value were greatly strengthened by the experience of Mr. John Frazer, our superintendent, who had a thorough education and much practice in this business in England, where the peach is grown exclusively on plum; and also from his knowledge of a peach tree in Missouri worked on this stock, which is distinctively healthy and bears fine crops of fruit. The wood of the peach on plum is more solid, sturdier and harder than on peach, as any one will believe who has grown the Apricot on the different stocks and noted the difference.

HOW I GROW CELERY.

BY AUGUST D. MYLIUS, DETROIT, MICHIGAN.

I think there are few localities better adapted to celery culture than that around Detroit city. The soil is well suited, being heavy and of a dark sandy nature. Of course celery will do very well in other soils, such as a light sandy one or clay, if manured heavily. And, indeed, celery gives good returns for manure, no matter what the soil may be. Cow and hog manure are best; fertilizers are of little use except on low lands. I have raised the best of crops on new ground of a dark, heavy nature without manure. The time for sowing seeds with us is, one lot the first week in April, the other the third week in the month. The seeds are sown in rows, in beds, and well patted down with the spade afterwards. This makes the earth firm around the seeds and is worth a dozen waterings. Planting is commenced about the middle of June and continued until the middle of July. The first planted we commence to earth up the end of August. This is done three times; the final banking up being about the middle of September. Celery bleaches best when boards are used, but the boards stop the growth by confining the plants too much; hence such plants are not as large or as heavy as trench bleached ones are. For winter use we dig trenches a foot wide, standing the plants close together and putting earth on the roots only. A foot board covers the top and horse manure is put on it little by little as the cold increases.

YELLOWS AND PEACH CULTURE.

BY CHARLES BLACK, HIGHTSTOWN, N. J.

Enough has been said about the character and causes of this so-called disease of the peach by experts. I do not propose to explain the origin or character of it; but give a few hints of practical experience of several years past.

I do not intend to deny the existence of such a disease as the yellows; but think it is often blamed for the destruction of our orchards, when the real cause is something else that is within our power to avert. I intend mentioning several causes, the most important being starvation, either from close setting or insufficient cultivation when the trees are set, or very often from both.

Many of our orchardists appear to think the more they get on an acre the more fruit they will get. This is a serious mistake, for one might as well expect ten head of cattle to live on

one acre of pasture as long as one would. When planted thickly they exhaust the natural elements of the soil and in a short time become yellow, dwindle to nothing, then yellows is said to be the cause. This is especially the case up the Hudson. Some of our friends there set as close as eight to ten feet, when they should not be less than eighteen or twenty. At eight feet they have sixty-four square feet to live on, at twenty, four hundred square feet, and then to help consume the needed food of the trees small fruits are planted between them. In this half-starved state is it any wonder that fungus, black aphid, or any other foe has an easy prey? The dead and dying are examined; these foes are found on them, and ascribed the real cause. When thus diseased, I am satisfied that the offspring of such trees, either from seed or buds, would be short lived and worthless and should never be used, as it is the principal cause of diseased trees seen occasionally in the best orchards.

It is not only the richest soil that is best for peach culture; in fact sometimes on such they will become diseased as soon as on poorer soil, as they make too rapid and succulent growth. They appear to get surfeited from too much food or from improper elements of the soil. The very best soils for peach are high, rolling or hilly, with warm loam and clay sub-soil. Peach trees will succeed in a great variety of soils and situations; but are very sensitive to a cold, retentive soil and should never be planted largely on such.

Another cause of failure is from planting trees from any source they can be purchased the cheapest. Every few years trees are in great demand, at good prices. At these times around nursery centres generally, and elsewhere, numberless small nurseries spring up, and the owners, knowing nothing of the principle of the business, and having no reputation at stake get buds, seeds, etc., where they can get them the cheapest, particularly the buds. They go to those having orchards, and not knowing the varieties, or a healthy tree from a diseased one, procure buds for nothing and raise what appears to be a first-class tree. These trees are generally bought by dealers, many of them peddled around the country by agents; badly raised, badly packed, and in a half-dead state they are delivered to the planter, and if they live at all they never can make healthy trees. Southern planters do not suffer from this

cause, as long experience has taught them to deal direct with honest, reliable nurserymen, who have an interest in every tree sent out.

Insufficient cultivation is another cause. Many plant healthy trees at proper distances, and if they are cultivated once, they think this is sufficient, and they become stunted and yellow. By all means, give young peach trees as thorough cultivation as you would a corn-field, if you expect to raise a long-lived, healthy peach orchard. If you reside in a peach section, select high, warm soil. Procure from a reliable source small, healthy trees, raised from long-lived Southern seed, and budded from healthy, young nursery trees and not from fruiting orchards. Plant from eighteen to twenty feet each way, being careful not to set the trees deeper than they were in the nursery. Give them good, clean cultivation, or, better still, raise corn or some cultivated crop that needs constant care.

If the soil is light and no means of properly fertilizing the crop, better not raise anything with the trees; but just give clean, thorough cultivation up to August 1st, then sow rye with 300 or 400 lbs. bone or phosphate to an acre; let this stand until it shows signs of heading the following spring, then roll or drag down and plow under. In this way an orchard can be raised and manured cheaper than any other. To avoid the borer, make a small mound of earth as compact as possible and six to ten inches high around the trunk of the trees. This must be done by June 1st. Let this remain until September 1st, then remove mound from trees and with a coarse cloth rub the portion of the trunk that was covered with the soil thoroughly; this will cleanse the trees of any signs of borers; and if this method is followed for two or three years there will be no loss from borers. After the trees get older with an unbroken bark, they can make but little headway.

The best method of pruning and that which our most successful and intelligent orchardists follow here, is when the trees are first planted to cut the main stem down to within eight to twelve inches of the root—small trees are better for this mode; let three or four shoots start from the main stock. This makes a low head in every way preferable to a high head formed from large trees. Where a vigorous growth is made it is well enough to cut back one-half of the present year's growth. Keep young, feeble branches well thinned out inside so that plenty of air and light can get through them.

As to varieties, it is best to depend on old, well-tested varieties known to succeed in the locality. If the natural elements are provided to the peach tree, its long life will astonish many who look on it as a short-lived tree. I have in mind a tree standing alone over twenty years old, vigorous and healthy, and no other cause than that it stands where its roots can reach out every year and supply it with the food required to make just a medium growth, and it does not starve or get overstimulated.

Let anyone who has an orchard that they think has the yellows, leave occasionally one of the best, and if the soil is well cultivated and fertilized, these trees will turn green, live and produce fruit for several years, and only because they have room to procure the elements they need from the soil. When occasionally a tree in a young thrifty orchard becomes sickly take it out; but when your orchard turns yellow generally, give them more thorough cultivation and fertilize them if the soil is poor.

If your trees are too thick, pull out every other tree or row, and as a rule you will cure the yellows; if your orchard has been started from healthy trees, some seasons have a great effect on them, and they may appear diseased and failing one year, and the following season being more favorable they will be healthy and all right.

THE GROS COLMAR GRAPE.

BY A. SIGLER, ADRIAN, MICH.

In your January number of *GARDENER'S MONTHLY*, I noticed an article of inquiry about the size and quality of the Gros Colmar Grape. I would not differ very materially from the answer it received from the editor. But as I have had some experience in the cultivation of forcing grapes under glass for nearly twenty years I will give my experience with that variety, and must say that it is a very shy bearer in a cold grapery and not first quality. It produces very large berries but no long clusters, and it takes almost a lifetime before you get any fruit, at least seven to eight years after setting before you get fruit.

PETITE MARQUERITE PEAR.

BY C. G. WICKERSHAM, PARSONS, KANSAS.

My Petite Marguerite Pear has fruited with me here, three seasons. The last season I picked five bushels, and placed them for marketing in

baskets graded ten to the bushel, and took one dollar per basket, and realized the snug sum of fifty dollars net for the fruit. I had but few Peaches last season, and the Alexander did the best of the early kinds. The prospect now is good for all kinds of fruit the coming season. I fruited the Bidwell Strawberry last season and was much pleased with it. I have in my collection about twenty varieties and think the Bidwell takes the lead.

A CURATIVE AND PREVENTATIVE FOR THRIP ON GRAPES.

BY JOHN PEATTIE, GARDENER FOR MRS. WM. KELLEY, RHINEBECK, N. Y.

As the time is drawing near for starting our early graperies, I wish to relate to the profession and horticulturists, my experience of last season with grape growing under glass. For some years back I have been very much annoyed by the aphid or the so-called light brown thrip, which has been a great deal of vexation to most grape growers, at the latter part of growth destroying the foliage and also leaving a filth on the fruit. Fumigating destroys them somewhat, but is not effectual; fumigation also leaves a taste on the fruit which gentlemen of refined taste dislike, and is a discredit to the grower. I have asked some of our best chemists to give me a remedy for this pest without injury to foliage or fruit, but found none until last season. After thinning my early house of grapes, foliage being young and tender I did not wish to fumigate; it destroys many tender points. Finding Mr. Thrip making headway and having a large bale of tobacco stems on hand, I mulched the whole inside border or floor with it, which gave with the heat and moisture a strong gas of tobacco or what the chemist calls nicotine. This completely destroyed the thrip or drove them out, giving no injury to either fruit or foliage, and my vines ripened with a beautiful golden foliage. I followed up the same remedy to the second house, then to the third, and all three houses gave me great satisfaction and relief, and it was a pleasure to look on both foliage and fruit. I renewed the mulching in all the three houses about three times during the season, adding a little fresh stems to keep up the so-called nicotine. I also found that the wasps and flies did not injure my ripe fruit or care to come in the houses. Since I made this discovery I have also used the same mulching on roses, and find it destroys the green fly. I have no doubt if it

was applied to the rose beds outside in the summer, it would have the same effect if the outside evaporation is not too much. Outside I have not tested the effect, but will guarantee the inside. I have no doubt your readers will be satisfied with this plan and would like to hear from some of them through your columns after testing.

JAPAN PERSIMMONS AS TUB PLANTS.

BY J. B. GARBER, COLUMBIA, PA.

I notice in the January number of the GARDENER'S MONTHLY that Mr. Berckmans, of Georgia, sent you some specimens of Japan Persimmons and that they were good fruit. You say all the trees planted around Philadelphia have been killed by the severe winters. You then ask, "Why can they not be grown in tubs like oranges?" These trees can be grown in tubs like oranges without difficulty and make beautiful dwarf shrubs.

I had a tree of the Japan Persimmon growing for several years in a nine-inch pot, and in 1880 this shrub ripened five fruits, yellow as an orange and of a most delicious quality—none of the astringency of our native varieties. Last spring I gave it a larger tub and it bore no fruit, but made a good growth. All my native persimmons bore no fruit last season. Though the trees (half-dozen) were not injured I suppose the fruit buds must have suffered by the severe cold of the winter of 1880 and 1881—22° below zero.

Yes, these Japan persimmon shrubs may easily be grown in tubs and they can be placed in a cellar or some out-house in the winter. The ground in the pot of my plant was frozen hard as a rock, yet it did not injure the plant, unless the cold may have injured the buds, but the shrubs grew well last season. I have now several other varieties which I intend to grow in the same manner, in tubs.

BENTLEY'S SWEET APPLE.

BY J. R. K., NEAR LOVETTSVILLE, VA.

I send you two apples by mail—Bentley's Sweet—which you will see described by Downing. I don't remember ever seeing it mentioned in my nurseryman's list or catalogue, and presume it cannot be in general cultivation. I got it from Ohio. Downing says it is a Virginian.

It comes up so fully, as I think, to the requirements of a first-class apple, that I am induced to send you a specimen for your criticism. It is

the most perfect bearer I ever saw; bears heavy crops of the most perfect apples. The fruit is so regularly distributed all through and over the tree, that every apple has a full chance for development. The tree makes a regular symmetrical head, with no crowding of the branches. The fruit is borne on spurs and small branches on the large limbs, and out on the limbs, and nowhere in clusters, consequently giving the entire crop a chance to become perfect. It promises to be an excellent keeper—is just now beginning to ripen.

While it is a sweet apple, it is still remarkably sprightly, as you will discover from the specimens. They may not yet be as ripe as they should be to have their best flavor. I should say, too, that the tree bears very young.

[This came to hand on the 20th of February. The apples were in first-rate condition, and had the appearance of being able to keep a long time yet. Though a sweet apple, it compares favorably with many Baldwins, which are the popular table apple of this section at this season, and perhaps would suit some tastes better. It ought to become a standard variety.—Ed. G. M.]

JAPANESE PERSIMMONS.

BY OLD DOMINION.

It may be of interest to you to know that the Japanese Persimmon is hardy in Virginia, latitude of Norfolk. Grafted plants imported in 1879, bore fruit the past season which ripened on the tree at the Barker Floral Gardens, Brambleton. One small tree, not two feet in height, bore nine plums, three of which remained upon the tree until fully ripe, and the largest measured three and a-half inches in diameter, and ten and a-half in circumference. They were of the seedless variety, and resembled the native persimmon in flavor, but very rich and of the consistency of the custard apple. Dried like dates and figs, they must be very delicious.

[This note on Persimmons, from Virginia, reminds us of an anecdote told in connection with the celebrated Captain John Smith, who in days long before woman's rights became a popular question, was protected by Pocohontas. He sent some of our native persimmons to Queen Elizabeth, which, we are told, "turned her Majesty's face awry." But Smith said the Indians called them "Pasheman." So far as we know the meaning of Persimmon in the language of the Virginia Indians, has never been ascertained.

We don't know how the orthography became changed to the modern usage, and we call attention to Captain Smith's mode of spelling it, as perhaps affording some better chance of getting at the explanation.—Ed. G. M.]

LONGEVITY OF APPLE TREES.

BY MILO BARNARD, MANTENO, ILL.

The minds of horticulturists in this prairie country are very much exercised over the seeming fact that apple orchards must be renewed every fifteen or twenty years, and the question naturally suggests itself, why this short life and early decay, when forest trees seem as healthy and as long-lived as in other countries?

The hypotheses advanced to account for this state of things, vary as much as do specifics for pear-blight or hog-cholera. One man thinks the trouble is climatic, and another thinks it is something in our soil, or something lacking in the soil; others think it is caused by the present mode of propagating the apple tree by root-grafting, pasturing our orchards, close planting, low-branched trees, and high-topped trees, etc., We often hear of apple trees in the Eastern States and in Canada living and producing bountifully for a hundred years or more, and just in their prime at forty or fifty years old. Is this a fact? and, if so, what varieties attain to such longevity? Is it the improved varieties, or the seedlings of ye olden time?

Can you give us any information in regard to the short career of our apple orchards?

[There is little doubt but the average life of an apple tree in Pennsylvania is about fifty years.

The length of life in any tree depends on its vital power. The English oak, in England, has an average of 500 years. In America, its average, so far as the few instances known will allow us to judge, is but about 100. The apple, we believe, has about the same comparative duration in the two countries.

Anything that affects the vital power of a plant affects its longevity. A tree which has to struggle with high winds and a low temperature, will not live nearly as long as the same kind of tree protected from these trying circumstances. In like manner, one subjected to very dry or very wet influences, or anything that is not the most favorable to vegetation, will not live as long as one which has everything favorable about it.

Thus we see that all the hypotheses named by our correspondent may have an influence so far as they bear on this question of vital power. Climate, soil, management, all relate to the question. We could make trees live as long in Illinois as anywhere else, but it would probably be at the expense of something we prize. What we call culture, is usually opposed to abstract laws of health in plants. We want something which nature unaided would not give us, and she insists if we will have it, it shall be only at the expense of something else. It may be that we have the best of it, even with a shortened longevity. This is the practical as against the abstract question.—Ed. G. M.]

WINTER NELIS PEAR.

BY A. HUIDEKOPER, MEADVILLE, PA.

Several articles have lately appeared in the *GARDENER'S MONTHLY*, with regard to this Pear, which I think is deserving of the notice taken of it. Thirty-six years ago I got a tree of it, with some other kinds, from Messrs. Ellwanger & Barry, and it is now the sole survivor of the lot. I do not mean to say by this that there is any unoccupied space in my little orchard.

The Nelis has some distinct characteristics. In growth it cannot be called a shapely tree. Some branches shoot upwards, while others have a tendency to droop and become bushy. A proper application of the pruning knife is the remedy for this.

The tree is profuse in its flowering, yet (with me) seldom sets more than a proper amount of fruit. Occasionally a branch or two will require thinning. The fruit matures here at latest period that is safe for it to hang on the tree and escape frost. After being kept five or six weeks it is fit for the table; and may be classified among the fine grained, juicy, sweet varieties, very good, and oftentimes among the best. The predominant color is yellowish green, but many specimens have a rich russet at mellow maturity. It has generally lasted with me until about the 20th of November; and I began to doubt if my tree was the winter or autumn Nelis, until this year, when the fruit promises to keep until the 1st of March. The fruit this season was large, many specimens weighing ten ounces, a larger portion weighing eight.

The fruit on being placed in a dry room had a tendency to wilt, and this seems to have been the

case with much of the fruit this season in New England. On being placed in a box in a very damp cellar, without straw or paper wraps, the fruit has kept nicely, can be brought into eating condition in a few days when exposed to a warmer temperature, and as noted above will keep three months longer than usual. What occasions this is an interesting question.

Seckel Pears were abundant here this season but not up to the usual standard of excellence, while Sheldon's were fair in form, and of high flavor.

EDITORIAL NOTES.

CATCHING THE CODLING MOTH WITH SWEETS.—It has been disputed whether the Codling Moth can be caught by sweet liquids in bottles, as wasps are caught. Professor Claypole, of Antioch College, Ohio, says he caught some the past year in a sugared dish.

BIRDS AND THE GARDENER.—A beautiful paper on our feathered friends was read at the Pennsylvania State Horticultural Meeting, by S. P. Eby. It created a spirited discussion in which the other side was heard. Few would be without the birds, we must have them, should encourage them, but have to study how to guard ourselves when they become audacious. The European sparrow found many enemies among the speakers; a few who thought it too soon to decide, and no earnest advocate.

SILK CULTURE.—The Women's Silk Culture Exhibit, held in Philadelphia last month, was a very successful one. Instructions for raising the worm and reeling the silk are sent free to anybody. So far as we know there is a ready market for all the raw silk that can be raised, and the prices are fair. Miss. H. Annie Lucas, 1328 Chestnut street, is the Corresponding Secretary of the Association.

CHOICE GRAPES.—By attention to firm and rather dry soil it is now known that almost any kind of true native grape may be made to thrive in any part of the Union. Loose open soil is unfavorable.

NEWTOWN PIPPIN APPLE.—Judging by the notes in English papers, it appears that considerable quantities of this variety are yet received in England from America. The general impression here is that it is rapidly giving out. Probably,

the one famous spot on the Hudson River where it found itself at home, still keeps up a good supply for England. It is extremely rare to find a barrel on sale in the Philadelphia market.

BURDOCK ROOTS.—It is said these make a fair vegetable when cooked. The flavor resembles salsify. The Japanese have improved the wild kind till it has become much superior to the original.

THE RIBSTON PIPPIN APPLE.—This has long been the most popular of English apples, but we judge by the remark of the *Garden*, concerning a recent exposition, that the "Ribston is still often seen in good form," that it is regarded as on the downward track.

PROFITABLE PEACHES.—It is a nice thing to have peaches to sell when your neighbor has not any. The winter of 1880-81, which destroyed so many fruit buds, made a fortune for the owner of trees which escaped and thus furnished a new illustration of the old story about the bad wind. Last autumn, Mr. Aaron Rhodes, of Highland, received \$721 from ninety-five Stevens Rareripe, set out in the spring of 1879. The number of baskets was 143—being a trifle over \$5 each. One shipment, October 6th, 14 baskets, (14 quarts each basket) brought just \$100 as follows, one basket \$8, two baskets \$7.20 each, 11 baskets at \$7 each. Mr. Rhodes has 650 trees which cleared \$3,300. Mr. Charles Downing, struck by the figures, made some inquiries and has reason to believe that they are strictly correct.

THE BALDWIN APPLE.—One of the reasons for the extensive planting of this apple in Mass., is that it does well on high dry soils, where other more surface rooting kinds comparatively fail.

OVER-CROPPING.—President Barry tells the members of the Western New York Horticultural Society that "In the management of fruit trees over-cropping is a great and very general evil. A tree overloaded with fruit can neither perfect the fruit nor ripen its wood properly and in a severe climate is quite likely to succumb to a degree of cold, which under proper treatment, it could have resisted perfectly. It is safe to say that millions of trees are annually ruined in this country by overcrops. The grape is very sensitive in this respect, if overloaded the fruit will not color nor ripen, nor will the wood ripen. It is not uncommon to hear people complain of

their grapes not ripening and the vines being killed and ascribing the trouble to every cause but the right one, over-cropping. This is an error committed not by novices only."

SUBSOILING.—Mr. Barry advocates subsoiling for fruit trees, and all farm and garden crops.

LEMON TREES.—It is surprising that more persons do not grow these in pots and tubs as room ornaments. A comparatively young plant will grow from twenty-five to fifty lemons a year, and usually they are much better than those we buy. We saw a test recently where one was taken from a tree which yielded double the quantity of juice to a first-class store fruit.

REMEDY FOR THE CURRANT WORM.—Mr. Longstreth of Dayton, Ohio, believes that the best remedy is a strong tea of the white hellebore, applied with a syringe to the young wood and under surface of the leaves before the insect is hatched, when they will turn white, drop off, and the bushes and fruit will mature admirably.

VALUE OF WORMS.—Dr. Storer of Harvard University, has entered the list against Darwin's views of the value of the earth worm. He concludes a long paper in the *Country Gentleman*, by asserting that though they may sometimes do good, they may also work to cause sterility.

RASPBERRY, REDER.—This is of unknown origin, at least it was seen to be something different from the rest in a bed of some kind, at Bayview, Mich. It has some repute in the Chicago markets.

THE AMERICAN WONDER PEA.—This variety introduced by the Messrs. Bliss, is holding its ground admirably in England, where the pea is a standard crop, and good varieties in constant demand.

STRAWBERRIES IN MICHIGAN.—According to recent reports, the most popular strawberries in the State are Wilson and Crescent. The *Michigan Farmer* suggests they are popular because they are the "Lazyman's" varieties.

MULBERRIES FOR CHICKENS.—The fruit ripening and falling so long in succession, makes the tree an excellent one for planting in chicken yards. The birds are very fond of the fruit. The White Mulberry or perhaps the everbearing sorts, will be the best to have.

FORESTRY.

COMMUNICATIONS.

AILANTHUS AS A TIMBER TREE.

BY R. DOUGLAS, WAUKEGAN, ILLINOIS.

I noticed an article in *Country Gentleman* on Ailanthus. We grow the tree but do not recommend it for durability; and you may recollect how quickly I called your attention to an error in *GARDENER'S MONTHLY*, where you had me as recommending it for durability. You will see that we recommend it as being of value for fuel and cabinet work. Prof. C. S. Sargent is having it tested on Boston and Providence Railroad, for ties, along with Catalpa and other kinds.

You will see by our mailing circular that we only recommend it south of forty degrees and especially recommend it for poor, dry, barren land only. We are planting two hundred acres of Ailanthus for a Boston capitalist, four by five feet, in Southeast Kansas; also planting them on the railroad tree section in same locality, where small one and a half year old trees, cut off to four inches of ground, make a growth the first year equal to broom handles and hoe-handles, and do not kill back at all. We find that seedlings do not sucker at all so far, and as the trees shade the ground completely after two years' growth there can be no danger of suckers till the plantation is thinned.

I don't think Ailanthus trees have been planted to the extent you intimate, and it is all a mistake about there being an "enormous demand for them in the West," as I think we are the only firm who have offered them until this season. Now, you will perhaps be surprised to learn that of all we have grown and sold, at least two-thirds of them have been sold to eastern parties and the remaining one-third has gone mostly to California, Oregon, Salt Lake and Texas. The Mormons call it the Paradise tree.

I think the Ailanthus fills a place for the Jersey shore, and the arid lands in the far West, where no other tree will do as well or be as profitable. Somehow it has become a habit with eastern men to give the western men some hard hits, and for this reason it is a great satisfaction

to me to be able to say that this tree was grown by us at the suggestion of eastern men; two men, who have said little, but have been the means of more forest trees being planted than any other two men in America.

It may interest you to know that with the two hundred acres of Ailanthus, referred to above, we are planting three hundred acres of Catalpa speciosa, and sixty acres of white Ash, five hundred and sixty acres in one body. Within four miles of this plantation lies the railroad section, six hundred and forty acres. The incessant rains last Fall, and at present, will retard us so that we will not get all planted till next Fall.

[Our remarks on the paragraph in the *Country Gentleman*, were not intended as hits at anybody. It seems as if nothing positive is known about the value of the Ailanthus wood, and it is desirable to get this information if we can. —Ed. G. M.]

EDITORIAL NOTES.

NEW WORK ON FORESTRY.—Dr. Franklin B. Hough, United States Commissioner of Forestry, is preparing a work concisely outlining the general subjects of Forestry in America.

TIMBER IN VIRGINIA.—Black Walnut and Tulip Poplar are mostly exported in logs. Over one thousand of these logs went over a single railroad—Norfolk and Western—during the single month of October, last year.

TIMBER PLANTING ALONG RAILROAD LINES.—The newspapers say that Burlington and Cedar Rapids Railroad Company is planting trees along the line of their road, between Muscatine and Nichols. In the East the railroads are cutting trees away from their tracks, because of the tendency to fire which the collected leaves and dead branches excite.

AMERICAN FORESTRY ASSOCIATION.—As noted in our last, this Association, in connection with the National Forestry Congress, will meet at Cincinnati from April 25th to 29th. Dr. Warder has

been untiring in the endeavor to secure a full attendance, and has been so successful that the meeting promises to be one of the most valuable in its results. Every one feels the need of more attention to our forestry interests; but just what should, or what can be done, has not been well defined. Some important, practical suggestions will no doubt be the result of this promising meeting.

TIMBER DURATION IN IOWA.—Professor Bessey believes timber is less durable in Iowa than elsewhere, and that the abundant presence of the dry rot fungus is the cause thereof.

TIMBER CULTURE IN AUSTRALIA.—It is proposed in South Australia that a block of 200,000 acres be reserved for systematic tree planting, and that in the first year \$70,000 be expended upon it, and in each of the eleven following years \$52,500, a total expense of \$650,000. After the first five years it is estimated there would be a revenue from periodical thinnings of \$175,000, and in twenty-one years they would possess 310 square miles of forest.

UNITED STATES TIMBER LAWS.—We recently referred to the evasion of the timber laws in Oregon. The law is: "Any person who is the head of a family, or who has arrived at age of twenty-one years, and is a citizen of the United States, or who has filed his declaration of intention to become such, who shall plant, protect and keep in healthy growing condition for eight

years forty acres of timber, on any quarter section (one hundred and sixty acres) of any of the public lands of the United States, or twenty acres on any eighty acres, or ten acres on forty acres, or five acres on any twenty acres, shall be entitled to a patent for the whole quarter-section or for such legal sub division thereof as he may have taken up, at the expiration of eight years, on making proof that the terms have been fulfilled, by not less than two credible witnesses. Moreover, any person having a homestead on the public domain who, after three years' residence thereon, shall, in addition to the improvements now required by law, have under cultivation for two years, one acre of timber in good thrifty condition for every sixteen acres of the homestead, shall, upon proof thereof by two credible witnesses, receive a patent for the homestead." It will be well for those who intend to act under this law to get from the Commissioner of the General Land Office at Washington, a list of trees acceptable to the government. By a recent decision Catalpa, Ailanthus and Osage orange are ruled out, on the ground that only such kinds of timber already well known in lumber markets were intended.

Since this was written we learn that N. C. McFarland, Commissioner in the General Land Office, has announced the intention of the office to regard Osage orange, Catalpa, and Ailanthus as timber trees entitling the planter to land under the United States laws.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

WILD GARDEN.

BY ED. L. JELLETT, GERMANTOWN, PHILA.

The season of the year is now at hand in which we can go with pleasure to the woodland, the hillside, and the meadow, and find objects worthy our closest attention and consideration. The love of flowers is natural, and this love

coupled with a spirit of investigation creates a pleasure which corresponds to the amount of effort put forth. In the selection of objects for pleasure or study, we should discard those thoroughly "epicurean" in character, and select those combining as much as possible—pleasure present, and pleasure in its permanence; their object seems to be found in scientific pursuits, and especially among the objects of the vegetable kingdom. We should therefore take advan-

tage of the opportunities afforded us, and especially of those which are scattered around us in such abundance. It is well known that "wild flowers" in general are looked upon as "weeds," but that does not in the least detract from, or in anywise alter their beauty. To persons who consider things from an intellectual point of view, wild flowers are far more interesting than those which are cultivated. It is not plants under cultivation which Shakespeare, Wordsworth, Burns and a host of others tell us of, but flowers in the simplicity of their beauty. It is of a few of these, therefore, that it is now proposed to speak, and to show that it is possible for all to enjoy their beauty with a very little amount of effort.

One of the earliest flowers to make its appearance, and one of the most eagerly sought after, is the Trailing arbutus (*Epigæa repens*). It usually may be found in flower about the 15th of March; in favorable seasons it may be found much earlier. The flower-buds being formed the autumn before, open at the beginning of fair weather; the pale pink flower may then be seen peeping from some mossy bank, or inconspicuous, as they often are,

"But sweeter than the lids of Juno's eyes,
Or Cytherea's breath."

It is a prevalent belief that it is impossible to transplant the Arbutus, and numerous cases of failure have been reported me. But if the conditions under which the plant is found growing be taken into consideration, success is almost certain. The plant will be found on high banks where moisture is abundant, and where the drainage is perfect. In transplanting the great difficulty appears to be to obtain a place where the roots may be kept moderately dry. The great secret in transplanting anything, and this plant especially, is to press the soil around the roots as firm as it can be done with the thumbs; when first transplanted it should be thoroughly soaked with water, and then watered only when necessary. Having tried this plan, I have succeeded in each instance, but destroyed a plant that had been growing eight months, by giving it too much water.

About the 15th of March the Hepatica (*Hepatica triloba*), or Liverwort, may be looked for; it also may be found earlier in favorable seasons. The flowers first make their appearance, followed later by the new growth of leaves. It is one of the most beautiful of our native flowers,

and even if the flowers were worthless, the plant is worthy of cultivation for the leaf. It is one of the plants easiest to move, and when replanted, it will thrive from the start. The custom of planting bulbs (in the autumn) which is so common, is noticeable from the fact that it totally ignores our native bulbs, many of which are worthy of cultivation. It is urged that the flowers of our native bulbs are too transitory in their character. While this is undoubtedly true, the same may also be said of all the bulbs, the Crocus, the Tulip, etc. And, again, it is urged that the flowers are too inconspicuous, which is also to a certain degree true; but it is not proposed to plant one to the exclusion of the other; acknowledging the merits of the one, the purpose is to point out some of the merits of the other.

One of the earliest of our bulbous plants, as well as one of the handsomest, is the *Sanguinaria canadensis* (Blood-root) of our woods. It is worthy a place in any garden; the whole plant, the flower, the leaf, and the tubes, is intensely interesting. By a series of observations made in a previous year, I discovered the average duration of the flower to be three days, and as the flowers do not all bloom at the same time, their period of bloom lasts for an extended time; and after the flower has passed away, the leaf is an ornament to any wild garden. It has only to be planted for it to grow. The plant may be looked for about the 10th of April.

About the 10th of April may also be found the Spring beauty (*Claytonia Virginica*). It usually will be found growing in rich ground, in woods near creeks; the bulb will be found from two to three inches below the surface, and to obtain it without injury to it, a trowel is required. Although the foliage of the plant is not especially desirable, the flower is very beautiful, and is desirable on that account. The *Thalictrum anemonoides*, commonly known as the Anemone, may be found about the same time, and the *Anemone nemorosa* a little later on; both are worthy of place, and will grow well in a shady place in the garden. About the 4th of April may be found the *Houstonia cœrulea*, known as the Quaker lady, Dwarf pink, Bluetts, and by numerous other names. It is a very delicate little flower, growing in grassy fields and meadows. The color varies from sky-blue to a pure white. It is too well known to need further mention.

The *Goodyera pubescens*, or Rattlesnake plan-

tain, may be found from the first of April until late in the fall. It is one of the finest of our native leaf plants, few, if any, of our cultivated plants surpassing it in the beauty of its markings. It is somewhat rare in comparison to the plants previously mentioned, but when once obtained, it may be kept in good condition without any difficulty. The Saxifragaceæ come in bloom about April 18th. There are two varieties: the *Saxifraga Virginiensis* and *Pennsylvanicum*; the former is more desirable because of its dwarf manner of growth, but the latter would make a very pretty plant for a rockery. The specimens of the Liliaceæ growing about, among which are the Solomon's seal and the *Polygonatum multiflorum*, will be found coming in flower from May 10th to May 25th. They both will be found growing in the woods, and both grow freely when transplanted. The flowers of both varieties are very pretty, and when they have passed away the berries of the Solomon's seal are wonderful in their beauty. Both are plants very desirable in any wild garden.

As the wild garden is the object for which this was written, enough has been said for the purpose mentioned. The foregoing list of our spring plants does not by any means include the whole number, but only a few of the most prominent, and those mentioned are not calculated to impress all with a sense of their beauty. The individual fancy will continually suggest new things in connection herewith, and will be guide in this matter. The great thing in this matter, as in all others, is to start it; it will then grow of itself, and if the writer mistakes not, will become the most attractive part of the garden. When once planted it is permanent, and daily increases in beauty, which, as the poet says, "is a joy forever;" and joys enjoyed "will never pass into nothingness."

POISONING BY KALMIA.

BY E. S. MILLER, WADING RIVER, N. Y.

In a previous number of the MONTHLY I saw Mr. Bassett's article on sheep poisoning by *Kalmia*. I at once wrote to Mr. Stratton, the herdsman on Montauk Point, who has had years of experience in the care of the thousands of sheep, cattle and horses which have been pastured on the Point. His reply runs thus: "I have made inquiries concerning sheep poisoning, though not with entirely satisfactory results. I can hear of no one that has made a thorough

examination with regard to this matter; but it is the general opinion about here that the sharp points of the leaves cut the lining of the stomach, thus causing inflammation, which usually results in death, but not always. I shall probably have a chance to make an examination before spring, as Mr. Benson has over two thousand sheep here for us to care for. The six or seven hundred that have been pastured here in previous years have been driven on about the 25th of March. Occasionally we have had snow storms after that; then, unless we watched them all the time, large numbers of them would kill themselves. They will not touch the laurel so long as they can get any grass, but when the ground is covered they go for it instantly."

This seems to me quite as likely to be the case as the poisoning by the presence of prussic acid. I shall endeavor to learn more about it from Mr. Stratton and communicate the result to you.

PAWPAW.

BY DR. W. R. GERARD, NEW YORK.

Some one takes one of your correspondents to task for spelling "Papaw," Pawpaw. The latter orthography is perfectly correct, the word is very often spelled so; and, moreover, it represents the accepted pronunciation of the name in the Southern and South-western States; The name was applied to the tree by the colonists, and was transferred from the Malay name *Pâpaya*, (Sp., *Papaya*; Fr., *Papaye*; Eng., *Papaw* or *Pawpaw*.) of the tropical *Carica papaya*—probably, as Dr. Gray remarks, from a fancied resemblance in form or flavor. Our plant does not even belong to the same natural order with the latter, and there is no reason why the spelling of the common name should be made to conform in structure to the Malay word; and there is every reason why it should be made distinct and be spelled as pronounced, Pawpaw. The earlier writers on the vegetable productions of this country spell it Papau, Papau, Papaw and Pawpaw. The Michiganders have named their town correctly.

The Indian (Algonkin) name of the fruit was Assimin, "Stone-fruit," (from the numerous seeds which it contained,) and hence the French name Assiminier or Aciminier, and the modern genus-name *Asimina*. It is a pity that in this case, as well as in numerous others, where our native plants had well-sounding aboriginal names, such names had not been preserved.

EDITORIAL NOTES.

ARUM FAMILY.—Almost all our readers are

raw, but are wholesome mealy esculents when roasted. The children know the flowers better as "the Preacher in the pulpit," alluding to the



PHILODENDRON CARDERI,

familiar with the Indian turnip—small roots | slender column of flowers which rises in the
from the woods which blister the mouth when | centre of the hood-like spathe. This is a good

illustration of the *Arum* family as we find them in our wild places. The common skunk-cabbage is another of the same family; instead of the spadix rising like a rod in the centre, we have but a globular mass of flowers. In our greenhouses we have the common *Calla* or Ethiopian Lily as a familiar representative, and from them a good idea of the order.

In tropical countries however, there are kinds, which though we might know they were Aroids by the general appearance of leaves and flowers, have very different habits, for they creep up trees, attaching themselves by aerial roots, much as poison vines or the English Ivies do, though the roots are thick and fleshy, as some orchid roots are. Many of these have thick leaves, beautifully tinted, and must give a grand effect to the forest scenery of which they form a part. The species we now illustrate belongs especially to this climbing class of Aroids, and indeed its botanical name *Philodendron* was suggested by its habit, the meaning being literally "a tree lover." Some of the genus have fruits which are excellent eating. In our own experience we have found the fruit of *Philodendron pertusum*, almost as good as a pine apple. These striking denizens of tropical forests, have proved to be among the most useful and beautiful in ornamenting warm greenhouses, and the present species *Philodendron Carderi* is believed to be among the loveliest of all. In England it was one of the twelve new plants with which Mr. W. B. gained the first prize at the Provincial show of the Royal Horticultural Society, at Preston, in 1878, and one of the nine new plants of which Mr. W. B. gained the first prize at the Great Show of the Royal Horticultural Society held at Kensington, in 1878. Mr. Bull furnishes the following description of it: "This exquisitely colored *Arad* is native of South America, whence it was sent to England by the collector, whose name it bears. The leaves are cordate, broadish, of a dark shaded bottle green, with a satiny lustre, the principal ribs being marked out by bright green lines of a glaucous or metallic hue; at the back the leaves are of a shaded wine purple, the course of the veins being marked by broad green lines. The glossy shaded satiny surface of the leaves imparts to them a wondrous degree of beauty."

WRIGHT'S SYCAMORE.—This, the *Platanus Wrightii*, first found by Charles Wright on the Mexican Boundary Survey in 1851-2, was seen

by Mr. Lemmon on the Santa Catalina Mountains, near Tucson, Arizona, on his recent trip. It is rather smaller than other species of *Plane*. They were about ten or fifteen feet in circumference.

GEOGRAPHICAL RANGE OF THE LILY.—It is remarkable that no species of Lily has been found in Central Asia, so far.

PROPERTIES OF THE COLA NUT.—In Japan and China the fruit of the Ginko is used during the many hours spent at a single fashionable dinner, in order to prevent any desire to leave the table before the long repast is finished. In South America the *Coco*—*Erythroxylon coco*—enables the user to endure long fatigue without much desire to rest. Sir Joseph Hooker finds the *Cola Nut*—*Cola acumanata*—used in the west of Africa to have a similar effect in arresting fatigue.

PINUS ARIZONICA.—This was once believed to be but a form of *P. ponderosa*, but Prof. Rothrock on Wheeler's Expedition believed it might be distinct, from its leaves being always in fives instead of in threes—as the *ponderosa*. Dr. Engelmann has at length decided it to be a good species, and named it as above. It grows in the Santa Rita Mountains, as low down as 7,000 feet, but it will probably be hardy enough for culture only south of the Potomac. Mr. Lemmon, who has recently given some account of it in the *Rural Press*, says that though the timber is as good as that of the *ponderosa*, the trees do not grow as large.

SCRAPS AND QUERIES.

COCO GRASS, JOHNSON GRASS, MEANS GRASS, CUBA GRASS, GUINEA GRASS.—"A. F. K." Thibodaux, La., writes: "In the February number of the GARDENER'S MONTHLY, 'C. B. W.,' Crockett's Bluff, Ark., speaks of *Coco grass* and *Johnson's grass*. They are entirely distinct. *Coco* is, with *Bermuda grass*, the curse of our gardens here. *Coco* or nut grass grows rapidly, and produces nuts underground at such a depth as to make it difficult to eradicate it. It is extremely tenacious of life, and both in nut and leaf bears a strong resemblance to *Chufa*. The *Johnson grass* is the *Sorghum halapense*. It is also called *Cuba grass*, *Guinea grass*, *Egyptian grass*, *Means grass*. I think it was lately distributed by the Department of Agriculture at Washington, as the *Johnson*

or Means grass. The planting of this grass lately gave rise to a hotly litigated suit in Mississippi—one farmer attempting to restrain his neighbor from cultivating this grass. It is much dreaded by planters, but as a pasturage plant it has been much lauded by Mr. N. B. Moore, of South Carolina, who claims to have made an income of from seven to ten thousand dollars a year, from a meadow of one hundred acres cultivated in this grass."

In addition we have the following from "H. W. R.," Aiken, South Carolina: "The Coco grass of your Arkansas correspondent (Feb. No., p. 59) is *Sorghum halapense*. It is well known in our State as Means grass, more westwardly as Johnson grass, besides several other aliases. The underground stems (roots) are similar to those of Bermuda grass (*Cynodon dactylon*), but much more stout. The root is perennial, the tops dying off in autumn, and starts early in the spring. It grows here five or six feet high, and in rich lands even higher. It may be eradicated by several ploughings in hot, dry weather."

OLD TREES.—It is now beyond doubt that the annual rings of wood, in trees, do not guide us safely in estimating the age of trees, and much of what has been written of the enormous ages of some trees will have to be gone over again. It is by no means certain that any one of the mammoth Sequoias is 4000 years old. The gum tree of Australia, it is well known, now makes two circles a year.

BOTANY IN CALIFORNIA.—Mr. J. C. Lemmon, of Oakland, California, the famous explorer, writes: "We wish you could have been with us in Arizona (Mr. and Mrs. Lemmon) when at last the Alpine park was reached. A lovely retreat in the mountain tops, high against the sky and the stars.

"We go again this season, but not until after the midsummer rains. Our last excursion was an autumn one and 'panned out' well, as Californians say. One new genus (a fine large Composite), Plummera, and a dozen fine new species, including a *Woodsia*, etc. We collected roots of many good things; especially we have sixty fine plants of the little known *Agave Schottii*, a beautiful yellow-flowered, sweet-scented *Agave* from the Santa Catalina Mountains. I believe this *Agave* will become immensely popular soon, as it is new to cultivation and very desirable, both on account of scent and color.

"We contemplate getting out a complete illus-

trated Manual of Pacific Coast Ferns, but the work necessarily will be great and require much time and expense. We think there is a general and refreshing awakening of interest, on this coast, on the subject of botany, and especially of ferns. You may yet hear of a club here in Oakland, rivaling the justly famous Syracuse Botanical Society."

THE AUSTRALIAN BOTTLE TREE.—A correspondent inquires what is known of this curious tree of which he sends us a sketch. There is no account of it in standard works of reference. Mr. Isaac Burk, of the Philadelphia Academy of Natural Sciences, has kindly looked up the matter for us and has given the note below:

"In the catalogue of the Kew Gardens, page 42, I find *Sterculia* (*Brachychiton*) *rupestris*, Australian Bottle Tree, remarkable for the shape of its trunk, similar to a soda water bottle. The natives refresh themselves with the mucilaginous sweet substance afforded by this tree, as well as make nets of its fibre. They cut holes in its soft trunk, where the water lodges and rots them to the centre, thus forming so many artificial reservoirs. On their hunting excursions afterwards, when they are thirsty, they tap them one or two feet below the old cut and procure an abundant supply. When I mentioned to 'W' what we had been looking for he remembered it and brought me the catalogue from which I extract the above."

ABSORPTION OF METALLIC POISON BY THE ROOTS OF PLANTS.—Professor Phillips, of the Western University, recently lectured in Pittsburg on the "Absorption of Poison by the Roots of Plants." If these poisons become soluble the roots will absorb a little, but the plant will die after such absorption. In that case the poison would be found in the tissue. If it be not soluble the plant may grow in the midst of poison and yet have no poison in it. Paris green, for instance, is not soluble, so there can be no poison in a potato where Paris green has been used for insects.

FROST AND PEACH BUDS.—A correspondent inquires what degree of temperature a peach bud will stand without injury? It is like asking what degree of temperature will make a man feel comfortable. We have known some people to freeze when near a fire, and another to keep warm in a snowstorm; and besides, the man who, to-day, can "stand any cold," to-morrow will shiver in a warm south breeze. And so it is with

all things that have life, peach trees included. We have known peach buds to be killed with a temperature very little below the freezing point, and then sometimes they will stand a good tug below zero. Last year the editor had an abundant crop from his garden trees, though on the 30th of December, 1880, the thermometer was

8° below zero; and in Canada there are often fair crops, though the glass indicates a much lower range.

We can only answer, that the hardiness of a peach bud is not dependent on temperature alone, and the degree they will stand, so far as knowledge has gone, is an unknown quantity.

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

EDITORIAL NOTES.

UNITED STATES SEED DISTRIBUTION.—It is interesting to remember that the want of a proper medium for the distribution of the rare seeds and plants which must necessarily come into the possession of a government like the United States, was the main reason for the creation of the United States Department of Agriculture. Mr. Henry L. Ellsworth, Commissioner of Patents, came into possession of large quantities, and mainly through his exertions the present department came into existence in 1862. The seed distribution idea has been abused, but it is essentially a leading element in the usefulness of the department.

DELAYED COMMUNICATIONS.—It sometimes happens that communications come to hand, having relation to some subject already immediately before the reader, in which case they must have precedence, though there may be other good articles already on file. It seems proper to make this explanation, as we would not have our friends suppose their communications are not appreciated, if they do not happen to appear promptly on receipt. We have never yet had too much of good papers.

SPECIALISTS.—It is surprising what improvements can be made in any class of flowers, when it has one's whole individual attention. In Germany there is one Max Deegan, who does nothing else but grow Dahlias. He makes a great reputation, and perhaps makes as much money as if he spent his time over a thousand things.

SUNDAY SCHOOL WORK.—Some Sunday Schools

are beginning to train children for the practical work of life, as well as furnish them with moral lessons. The girls in a large Sunday School in Philadelphia are taught how to do plain cooking. In Australia, we note by one of their papers, many Sunday Schools there are teaching the children lessons on the domestic animals, chiefly with the view of enabling the little folks to know how to treat them well in the interest of humanity.

SENSITIVENESS OF TRADE.—When a tradesman has an overstock of anything, the most rational thing in the world is for him to conclude it is better to get something than nothing, and he had better sell for something than let go to waste. How this works has been curiously illustrated the few past years by the Harlaam bulb growers. It appears the English cut flower dealers were in the habit of buying immense quantities of tulip and hyacinth bulbs for their cut flower market. The Harlaam bulb growers, when their bulbs flowered, not wishing to waste their blossoms, sent the cut flowers to the English market to be sold for anything they would bring. The result has been that the English cannot afford to buy the bulbs, and many of the Harlaam growers now have to sell the roots as well as the flowers for "anything they will bring," and the regular bulb market is verging on bankruptcy. To try to recover the goose which laid so many golden eggs, a society has been formed to swear off from this reckless practice. Already, 500 Harlaam bulb growers have taken the pledge not to sell the cut flowers under any circumstances.

FLOWERS IN EGYPTIAN TOMBS.—It is said that Dr. Schweinfurth in opening a tomb near Thebes

—tomb of "Queen Isimkheb" over 3,000 years old, and in which the remains had been preserved by bitumen, even the forms in a floral wreath were traceable. The flowers were found to be chiefly of white and blue Nelumbium, or Water Lotus. Other species were identified though their names are not given in the account before us.

A LOVER OF TREES.—The *London World* says, alluding we suppose to effects of the severe winter of 1880-81, which would now only the past summer show its full effects: "The destruction of trees on Lord Haddington's estate, in Haddingtonshire, was so wholesale that the beauty of his place is entirely destroyed, and it will be half a century before the loss can be replaced. Lord Haddington feels this so acutely that he has shut up his place and gone abroad for the winter, preferring this to watching the clearing away of the ruins, which will occupy many months."

LEICHDART, THE LOST AUSTRALIAN EXPLORER.—The man who professes to have found the relics of this long lost explorer, asks of the English Government \$30,000 for what he has found. Under the advice of Baron Von Mueller, he has been informed that undoubted authenticity alone, will induce the Government to consider the proposal.

DOMINY THE ORCHID RAISER.—Dominy who was for so many years foreman to Veitch, has retired from age. He was the first to raise orchids very well from seeds, and to reduce their hybridization to good practical results. On his retirement a number of orchid growers in England, who had derived pleasure from his beautiful creations among these pretty flowers, made up a purse of over \$1,000, which was recently presented to him.

ART AND SCIENCE.—Mr. John Williamson the well known botanist of Louisville, is also famous in art. The Kentucky papers speak in high praise of some etched plaques of brass on exhibition, in which the ferns and other plants are so accurately engraved, that any botanist can tell the species. The *Courier Journal* remarks that Mr. Williamson has "reason to be proud of this unique and beautiful piece of work." On the birthday of Burns, a festival given by the St. Andrews Society, Mr. Williamson also made the great speech of the evening, in which he showed that the art of poetry had a well furnished home in his breast, as well as science.

JAMES VICK.—The *Garden* of January 28th, has an excellent likeness and sketch of the history of James Vick, whose successful career every American horticulturist takes a pride in. Mr. Vick was born at Kingston, near Portsmouth, Hampshire, England, November 23d, 1818. He came to this country with his father at fifteen, and learned printing with Horace Greeley. He removed to Rochester a year or so after learning the trade, cultivating flowers as an amateur, and giving his experience freely to the newspapers. He was employed by Luther Tucker, and eventually issued and edited the *New Genesee Farmer*. On the death of A. J. Downing by the burning of the Henry Clay, (not the Swallow, as stated by the *Garden*,) he published the *Horticulturist*, which however did not prove profitable enough to continue, and was sold. Then he edited the *Rural New Yorker*, and in 1857 commenced the seed business, which, as our readers know, has come to be one of the largest in the world.

AUSTRALIAN EXPLORER.—John Forrest is the name of the most popular Australian explorer just now. He has recently been elected a Fellow of the London Linnean Society.

THOMAS POTTS JAMES.—The members of the American Pomological Society have many of them learned before this, of the death of one of the founders, and for thirty years the treasurer of the Society, Thomas P. James, who died at his residence in Cambridge, Mass., in his 79th year. It was only a few years ago that he resigned the office, owing to his advanced years. He was born near Philadelphia, and was a member of the ancient family of Potts who founded Pottsville, Pottstown, and other places with similar names in Pennsylvania. He was a leading member of the drug business in Philadelphia for many years, relinquishing it but a few years ago to reside near Boston where the relatives of Mrs. James lived. During the many years that he resided in Philadelphia he was actively engaged in fostering the interests of intelligent horticulture, and was long the Secretary of the Pennsylvania Horticultural Society, when, before the burning of the Chinese Museum and the immense growth of the city had removed its fine gardens a long distance from its centre, the Horticultural Society was among the most popular and influential organizations in the city. Mr. James took the same interest in Botanical science as he did in fruit growing and gardening, and was especially distinguished in his know-

ledge of the humble tribe of Mosses, in which branch of knowledge he was regarded as eminent all over the world. The American Philosophical Society of Philadelphia, loses one of its most esteemed members in Mr. James. This Society, the Pennsylvania Horticultural Society, and others which he was identified with, have all passed resolutions of respect to his memory; and these, in his case, were not mere matters of form, for few have been more sincerely mourned. It is not often that we find men giving so much time freely to advance the pleasures and knowledge of other men without any thought of reward but the pleasure of doing good, as did Thomas P. James.

THE LOST FLORIST.—Robert Carey, the florist and hot-house grape grower, whose mysterious disappearance led to a paragraph in our magazine recently, is believed to have been murdered and thrown in the Delaware river, where his body was found, partly decomposed, in the early part of March. It adds one more to the numberless mysteries of great cities.

OUR WINGED FRIENDS.—This is an essay read before the Pennsylvania State Horticultural Association by Mr. Simon R. Eby, and now published in pamphlet form. It is an excellent plea for the birds. There is of course another side to the story, but that is not Mr. Eby's theme. The birds which receive the chief friendly notices are swallows, night-hawks, purple martin, king bird, rock pewee, wood pewee, Baltimore oriole, orchard oriole, wood thrush, vireos, some warblers, wren, blue bird, titmouse, chickadee, mocking bird, robin, cat bird, black bird, meadow lark, chipping sparrow, song sparrow, indigo bird and the wood-peckers. Mr. Eby repeats the belief of many ornithologists that the sap-sucker is searching for insects when it makes the innumerable holes, like honeycombs, on many trees. This must be a mistake. There are certainly no insects in many scores of branches which are riddled by the bird, and it is incredible that birdly instinct should lead to the loss of time and hard labor involved in the boring of thousands of useless holes. But granting that these numberless holes are for the purpose of hunting for one insect it can make little difference to the tree how the holes are made. They are just as bad for the tree as if an insect made them.

PENNSYLVANIA STATE AGRICULTURAL REPORT FOR 1881.—Pennsylvania, regarded as a very "slow State," advances rapidly when once it

makes up its mind to go forward. It is only five years since it followed other States with a "State Board of Agriculture," but it has done excellent work since. Usually, bodies of this kind do not issue their reports till nearly a year after date. Here we have a huge volume of 650 pages, issued within two months after the year closed. Of course the admirable abilities of the methodical secretary, Thomas J. Edge, have much to do with the prompt appearance. Many of the papers read before this body find their way through the manuscripts to the public papers. The extemporaneous addresses are taken down by the State stenographer and appear here for the first time. Among these are the addresses of the State Botanist—one at Williamsport on "Forestry and Forests," one at York on the "Fertility of Trees and Plants," and at Gettysburg on "Farmer's Gardens." Some of the best of the written essays have also not been widely re-published. One on "Peach Buds and Peach Growing," especially, has not had the attention it deserves as one of the most thoughtful and original papers on peach culture that has ever appeared. It is from the pen of Mr. Sherfey, son of the owner of the celebrated peach orchard at Gettysburg, in which one of the bloodiest engagements of the Civil War took place. There are many beautiful illustrations of horticultural and agricultural import, some of them colored, notably the Miner plum, Cumberland Triumph strawberry (too deep a scarlet, we think), and in plain outline and perspective plates of apples, grapes, etc., illustrating popular Pennsylvania seedlings.

FRUIT GROWERS' ASSOCIATION OF ONTARIO, REPORT FOR 1881.—If there be any one left who thinks "Fruit Growers' Associations" are made up of men who meet together to talk only of the prospects of the fruit crop, and the probable effects of the winter on prices, they should get this report. Indeed there is much more of general gardening matter in this than in many regular horticultural reports. It is an admirable volume in many respects. We note they have to discuss "the yellows in the peach" in Canada, as well as in other places. We note also that white peaches are preferred to yellow kinds for drying.

MULBERRIES.—Many trees are famous because of their dimensions, others on account of their longevity, many are esteemed for the excellence of their produce, and there are many more yet that are exceptionally beautiful in regard to

flowers or foliage. The Mulberry stands nearly alone in its special recommendation, which, as every one knows, is to supply food to the "millions of spinning worms."

"That in their green shops weave the smooth-haired silk."

It should be stated that the White Mulberry has almost entirely superseded the Black Mulberry as a food-plant for the silkworm. Three centuries ago the Black Mulberry was alone used for this purpose, and it is to this latter that the following remarks chiefly apply. In physiognomy and stature it is by no means remarkable, the height not exceeding thirty feet. The branches are thick and rude, the head of the tree is close and rounded, the leaves are cordate, nearly sessile, rough, coarsely serrated, and very dark in hue. The form of the leaf is prone, however, to very curious changes, the blade often becoming more or less perfectly three or five lobed. The flowers are separately male and female, the males appearing in short yellowish-green catkins, the females in compact and almost globular green spikes. The perianth in the latter consists of four pieces, and it is these, strange to say, which eventually constitute the great mass of the ripe fruit. With the progress of the ovary to maturity the perianth lobes become greatly enlarged and finally confluent. Structurally the Mulberry is thus not very unlike the fruit of the Pine-apple. The tree is of great durability, and seems to be wonderfully tenacious of life. It is tolerably hardy, deciduous, and in the spring very late in acquiring its verdure.

That the original birthplace was south-western Asia there can be no question. At the present day it is observable in a seemingly quite wild condition in the northern parts of Asia Minor, Armenia, and the southern Caucasian regions, as far as Persia.

There is no exact knowledge of the early history of the Mulberry. The ancient Greek writers upon plants and trees speak of it under the name of *μύρον*. "Moron of Sycamine," says Dioscorides, B. c. 25, is well known." Athenæus also gives proof of the name Sycamine being a synonym. With the Romans the name became *Morus*, the tree having reached Italy some time prior to though not so very long before the Christian era. Horace praises Mulberries as immensely conducive to health if gathered before the heat of the day, and eaten as dessert after dinner. Martial also refers to this fruit, and in Virgil, *Æglé*, the playful shepherdess of the sixth eclogue, paints the eyelids of the sleeping

poet with the purple juice. To the very early Greeks the Mulberry would appear to have been a stranger. The period of the first conveyance of the tree from Asia into Europe is altogether undiscoverable; it was early enough, however, to become the subject of a myth, preserved in the pathetic tale of the loves of Pyramus and Thisbe. The extension westwards was no doubt owing chiefly to the Romans, who after their victories never omitted to convey homewards what they found valuable in other countries; and who, to their credit, at the same time, it should be remembered, were always diligent in conveying to conquered countries the plants and trees they thought most useful to mankind. Their object in propagating the Mulberry would no doubt be to obtain supplies of silk, as a home-product, instead of depending for all they possessed on the merchants who traded with the far East. Silk in the time of the Cæsars was so scarce, and the cost was so enormous, that even so late as in A. D. 270, the Emperor Aurelian is said to have refused his wife a dress of the pure material. Even royalty could not then afford to wear silk unmixed with some cheaper fibre. Silk was not even known to the Roman people until the period of the empire, though afterwards it is mentioned frequently in their literature. Charlemagne, who did so much for the good of his nation, in A. D. 812 ordered the Mulberry to be cultivated upon all the imperial farms; and possibly it may have been about this time that the tree was first carried across the English Channel, "mor-beam," literally "morus-tree," occurring, Bosworth tells us, as an Anglo-Saxon word. When London gives 1548 as the year of the introduction to England, he surely must have in view some definite historical occurrence—a renewed rather than a first appearance. James I. like Charlemagne, did all he could to encourage the home production of silk. He imported shiploads of young Mulberry trees from France, and offered a packet of Mulberry seeds to any one who would assist in his undertaking. In consequence of the patronage thus given to the tree, it is said that by 1609 there were in England not fewer than 100,000 of the *Morus nigra*, and of these it is believed some are still in existence, including the famous old Mulberries at Syon, and one or two at Oxford. In the gardens of country seats which date from the time of Elizabeth or earlier very aged Mulberries are also apt to occur, and these likewise are probably almost as old. The royal scheme, like so many others, set on foot by the unfortunate first of the Stuarts, died in its infancy. Praiseworthy, and for awhile promising, in the end it proved utterly unsuccessful.—*Gardener's Chronicle*.

MICHIGAN STATE HORTICULTURAL SOCIETY.—From secretary Garfield, Grand Rapids, Michigan.—Without derogation to the work of other

State societies, it will be only fair to this to speak of it as a model one, or of its report as a model document. The State society has successfully established auxiliary county societies which report to the central body, and receive all the aid and encouragement the central body can give to them. It has often occurred to us that this should be the aim of every State society, but did not know the plan was already in such successful operation as appears to be the case in Michigan; and it must be observed that these societies appear to be genuine horticultural societies. Consideration is deservedly given to pomology. Fruit growing is an essential element of good culture, and no horticultural society is worthy of the name that does not honor it, and indeed, in many instances, give it the post of honor. But we have known professedly horticultural societies in which any attempt at general garden culture, outside the thousand acre, would be frowned upon; and if any member appeared at the meeting, in any other dress than cowhide boots or blue-jean pants, he would be regarded as too high toned for anything. As for bringing a pot of primroses, or appearing with a buttonhole bouquet in the lapel of his coat, it would be regarded as an outrage on the Society. Evidently the day for all this low tone is gone. To judge from this admirable report the local societies are in the hands of the most intelligent ladies and gentlemen of the counties where they flourish, and the pleasures of gardening, as well as its profits, receive the consideration to which the subject is entitled.

Yet, as before noted, it is a pleasure to remark how admirably all matters connected with fruit culture are watched, and improvement developed. The local catalogues of fruits, founded somewhat on the plan of the American society's lists, is an excellent idea, and well done. It appears to us, from this report, that Michigan is leading in all branches of horticulture; and those States which have thought themselves supreme must look to their laurels.

SCRAPS AND QUERIES.

THE MALEFACTOR'S TREE.—There has been controversy whether the tree on which Judas hung himself, was the large tree Elder of Europe, *Sambucus nigra*, or the *Cercis siliquastrum*, the Red-bud, or "Judas tree." The partisans of the last have gained one advantage by getting the name of Judas attached to it. Again, there are differences of opinion as to whether the tree is disgraced by the association, or whether it should not rather be honored as the instrument by which such a wretch was put out of the way. On this we have a note from a correspondent:—

"The idea of looking upon the Elder as likely to form a malefactor's gibbet-post, or gallows-tree, on which the arch-traitor was suspended, is too preposterous to give credence to. The sacred writers are careful to conceal the kind of tree from which the wretched suicide dangled.

And even the quaint and credulous Gerard, honest old soul as he was, scornfully rejected the slander, and in its defence says of the *Cercis*, 'It may be called the Judas tree, for it is thought to be that on which Judas hanged himself, and not on the Elder, as is vulgarly said.' So much for a profane writer, who thus tersely and trenchantly defends the honor of the Elder tree."

TREE PEDDLERS AND NEW SUBSCRIBERS.—"G. M.," Rochester, N. Y., writes: "Mr. Meehan says in the MONTHLY that the 'tree peddlers are an unmitigated nuisance;' yet our 'tree peddlers,' as he calls them, are neither slanderous nor do they ever favor new customers at the expense of the old. But you charge old subscribers full subscription price for the magazine, while they can send a new one for \$1.60. I fail to see the justice of this arrangement."

[The publisher places the above in the editor's box. "G. M." is mistaken all through.

1st. The GARDENER'S MONTHLY does not regard the tree peddler as an unmitigated nuisance. On the contrary, he regards the honest and upright tree agent as one of the most useful members of the community.

2nd. The publisher does take \$2.10 from new as well as from old subscribers. He makes no difference between new or old, but when an old subscriber takes the trouble to hunt up a new subscriber, and has all the trouble of collecting the money, correspondence, and so forth, he gives the old subscriber—not the new one—fifty cents for his trouble.—Ed. G. M.]

THE DETROIT CARNATIONS.—John Breitmeyer & Sons, Detroit, Mich., say: "Looking over the advertisement pages in the March number of the MONTHLY, we, to our surprise, notice on pages 13 and 27, an insertion by Mr. Aug. D. Mylius, and Messrs. W. B. & W. M. Taber, in which it appears that they are offering the old Carnations 'Grenadine' and 'Hinze's White' as new, under the names of 'H. Red' (should be 'Grenadine'), by Mr. Mylius; 'James A. Garfield' (should be 'H. White'); 'James G. Blaine' (should be 'Grenadine'), by Messrs. Taber. Believing that we were the first to introduce them into commerce (more than a year ago), and as we have distributed them into nearly every State of the Union under the names of 'Grenadine' and 'H. White,' we deem it our duty to bring it to the notice of the readers of the MONTHLY by throwing a little light into this name changing business of our neighboring florists. Said Carnations are, very true, good winter-blooming varieties, and possess, to some extent, the merits said gentlemen claim for them.

We have received many letters from our customers asking to be informed what the difference is between all these varieties, and in order to inform them all, we would beg you to give space for this in the MONTHLY."

[As the proof-sheets are passing through our hands, we have a note from Mr. Mylius, explaining matters, which we shall give in our next.—Ed. G. M.]

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

MAY, 1882.

Number 281.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

We cannot do better this month than refer to the excellent hints of Miss A. G., and then take for a text the following query from Mr. George Wright, of Table Grove, Illinois: "I have some evergreens that have been set out for ten years. I want to remove them. Can I do it safely? If so, please give me some instruction how and when; they have grown thrifty and are of good size."

Evergreens, such as you described, are moved here when twenty or twenty-five feet high, at comparatively small cost and perfect success. They can be moved up to the time the new growth commences, or any time after midsummer, when the young growth has become hard. If it is, say a Norway Spruce, with a trunk nine or twelve inches thick, the branches are drawn in as tightly as possible about the trunk for convenience in working. A trench at least two feet deep, and, say two feet wide, is dug around so as to leave what appears to be a ball of six feet radius around the trunk. From this time a strong digging fork is used to take all the earth out from the ball. This is very easily done if the approach to the stem is always made from under the ball, so that the earth rather falls out of the ball when the fork is put into it, than dug

out. In this way nearly all the roots are preserved without much bruising. We have at last a tree with roots twelve feet wide, and which may have been, perhaps, all prepared by one man by half a day's work. Then we get a pair of wheels and a pole, such as lumber men use. A two-wheel cart may do on an emergency, and the two shafts are often better for an evergreen than a single pole. Backed up against the tree, with the shafts so that they can be lashed to the tree, the top of the tree acts as a lever, and with a rope on the top of the pole or shafts, the tree comes over exactly balanced on the axle between the wheels. A horse then draws the tree, root foremost, to the new hole prepared for it, where it is easily dropped in. The earth is then hammered in, shovelful by shovelful, as tight as it is possible to hammer it, so that there shall not be a hair's breadth of a cavity left if it is possible to close it, and the work is done. In this way two or three men and a horse can move a tree twenty-five feet high in one day, and if the earth is tightly hammered in, the tree, if healthy and vigorous, will be almost sure to live. It is no use to try to move an unthrifty tree. Its low vital power will not survive the shock. Do not water, this is one of the fatal practices often employed. It may carry the earth to the top of the roots, but the weight of water carries the earth away from the under surface of the roots.

Incessant hammering of every shovelful of earth will do more good than all the watering could ever do. If the earth be hammered as properly as it ought to be, there is no room for the earth to be carried tighter by water. If the earth be as tightly hammered in as it ought to be, there will be no occasion for staking. If a tree lean or sink after planting, it shows it was not properly planted.

COMMUNICATIONS.

THE ADORNMENT OF SMALL YARDS.

BY MISS A. G.

A narrow border of gay flowers has a very pretty effect when set next to an open fence, especially if bordered with grass or a grass plat. Stiff looking plants, such as box, should not be used for borders, those of brick or tile are preferable, and even these ought to be nearly covered with low-growing plants, such as Sweet Alyssum, Forget-me-nots (*Myosotis*), *Oxalis*, Pansies, *Peristrophe variegata*, *Silene*, Stone crop, Candytuft; or when set in the grass, *Echeveria*, *Bamboo variegata*, *Houseleek*; and if shaded somewhat, *Tradescantia*. Love-entangled makes a lovely border the second summer after planting. White or pink fairy-lilies (*Zephyranthus*) might be added to this list.

Beds bordered with *Bamboo variegata*, to which are added first, *Echeveria*, then *Sedum*, then other varieties of these, finishing with an *Aloe*, or *Dræna* in the centre, if a circle or star has the effect of mosaic work, and needs very little attention during the season. Points may be put in solid with *Houseleek* or *Echeveria*. The common hardy *Opuntia vulgaris* has a distinguished appearance, if given a circular bed to itself, and like the mosaic beds, requires little or no care during the summer.

For shade, or half-shade, there are no plants so fine as ferns, our native kinds among the best, because hardy and, with care, permanent. The tall growing kinds fill up corners, or form pretty contrasts to flowering begonias, which bloom well in shade or part shade. Or these mixed with the varieties of *Tradescantia* form a lovely bed. We know of one unsightly corner formed by a wall and fence that was transformed into beauty by means of hanging baskets on the wall, tall-growing begonias set on bricks in the corner, then other begonias and leaf plants

An old tin bucket filled with drooping ferns and *Tradescantia* formed a centre-piece, around which were grouped *Rex* and summer-blooming begonias, interspersed with *Tradescantia* and low-growing ferns. *Peristrophe variegata* would make a fine border for such a bed, as would also *Sedum cœrulea*. Among many other plants for shade may be mentioned the tropical plants *maranta zebrina*, and other varieties, climbing and exotic ferns, the lovely *Campidium filicifolia*, the *Paullinia*—*Caladiums*, formerly thought to be shade-loving plants only, are found to do as well in full sun if properly watered.

For half shade is the splendid scarlet *Lobelia*, which in a side yard, partially damp, we saw run into variegations from the original deep scarlet up to rose pink, and even white, all being remarkably beautiful. Add to these the blue and white *Browallia*, Pansies, *Fuschias*, *Coleus*, *Gloxinias*, *Forget me-nots*, &c. The latter should be separated in the early spring or it will die out. It should also, to ensure a second bloom, be cut down after the first blossoming. It may again be separated in August if desirable.

For sunny situations the flowers are too numerous but for slight mentioning; with this reservation—that all large-growing plants, such as peonies, large iris, or flags, the tall-growing garden lilies, or plants which form large groups, should be avoided for small yards as they diminish the apparent space, while small-growing plants reverse this. Among other pretty plants we put in a plea for *Phlox Drummondii*, and the *petunia*. The former may be made a blaze of beauty by the use, daily, of dish-water as a stimulant, and will so continue for most of the summer. The *petunia* is so faithful “under adverse circumstances,” and has been so much improved by German florists, that it rivals the most refined beauties of the garden. Those who have never seen a pure white *petunia* blotched and lined with rose and carmine, and its petals delicately fringed are unaware of its marvelous possibilities.

Pretty devices to hold and set off the beauty of plants are numerous, among them are iron brackets to fasten to a wall or fence, for holding pots of flowers, long hooks to hold hanging-baskets. Pots to hang to the fence or wall, wire frames for suspending pots to the wall, small shelves for a few pots. Baskets of wire to hold moss and earth, which may be stood or hung about, not to mention costly vases, *jardinières* and ornamental pots or jars. Care should be

taken that these adornments are not set in formal rows. The appearance of pretty yards has been spoiled by brackets set on every post. Let them be alternated or varied by a difference in shape or size, or by a shelf-box or other device. Nature makes variety, and we should follow her rules if we would have perfect taste. For vines there are many pretty arrangements; one I saw was a large hoop cut and each end fastened to an upper window sill. Strings were fastened to this at regular intervals and brought together near the ground. Vines trained in this way make a lovely window shade

BUDDED ROSES.

BY MRS. R. B. EDSON.

It is the universal testimony of those in a position to know the facts in the case, that there is a great and rapidly increasing interest in the cultivation of roses. The magnificent new Hybrid Perpetuals are sufficient excuse for any amount of enthusiasm. But right here, at the very threshold of rose culture, is a "lion in the way."

In the Editorial Notes, page 7, of the January MONTHLY, I read that the Manetti Rose, once popular as a stock for budding roses on, was practically abandoned something like thirty years ago; or, to use the exact words, "the force of public opinion caused florists to utterly discard it."

Now I open Ellwanger & Barry's Catalogue of Select Roses for 1881—and a most conscientious and reliable catalogue it is—and I find that these well known and skilled rose-growers say that they grow them in about equal quantities on their own roots and budded on Manetti.

Then I find in Mr. Saul's catalogue the following: "Our Roses are on their own roots, except the newer sorts, and those which, from experience, we find do better budded. These we furnish on Manetti."

Mr. John B. Moore (the "Moore's Early" grape man), of Concord, Mass., makes a specialty of roses. That he grows fine ones, I can bear personal witness, he being one of the chief exhibitors of roses at the Massachusetts Horticultural Society's June shows. The many "first prizes" awarded him by the committee, are a substantial proof of their excellence. Indeed, I was so pleased with his roses last June, that, in the first flush of my enthusiasm, I wrote for his catalogue. I wanted to get them near home, as

expressage on small orders from a distance, often exceeds the order itself. I had also seen his roses and believed he knew how to grow rose plants, if he could grow such fine roses. Then I wanted them pot-grown, as everybody knows that roses have strong constitutional objections to being "pulled up by the roots." I opened the catalogue; everything was all right till I came—O horror!—to this: "Our roses are all budded on Manetti."

Now I submit, is not this thing an outrage on poor, innocent and unoffending amateurs? How are they to decide when "doctors disagree?"

I confess to a prejudice against budded roses, and yet I had so much confidence in the authorities named, that I was fast settling down into the belief that, possibly, these practical rosarians knew more about it than I! But now comes the MONTHLY with the assertion that budding roses on Manetti was driven to the wall a great many years ago, by the "force of public opinion."

All my old distrust is up in arms at once. Surely it must have been a dreadfully disreputable practice to have caused such a result. I am all at sea again—who will come to the rescue? Please, somebody, discuss this matter, pro and con, that amateurs, desiring the best results from their outlay, may no longer be in such a state of lamentable ignorance in regard to the two methods of propagation.

[Almost all—perhaps all roses—grow better and make finer flowers when budded on the Manetti than when grown on their own roots. This is as true as gospel. The trouble is from the suckering. The Manetti rose-leaves and shoots are very much like those of ordinary roses, and they push out from the stock without being observed. If they are not observed, all the graft above the sprouts die. If one has the intelligence to discriminate and the time to watch for, and take care of these suckers as soon as they appear, there will be wonderful success with these grafted roses. But nine out of every ten people do not know, or if they know, neglect it in time, and the result is that in one or two years after planting, when the rose-lover looks for his grand June show of rose flowers, he has nothing but miserable Manetti buds for all his trouble and expense. A quarter of a century ago, before the last craze on Manetti died miserably, it was no uncommon thing to go from garden to garden and find nothing whatever but Manetti plants, where people thought they had choice roses,—Ed. G. M.]

HARDY CYPRIPEDIUMS.

BY W. L. F., HANOVER, MASS.

As I have had some experience in growing the hardy *Cypripediums* which "Q" inquires about in the March number of the MONTHLY, I am glad to give any hints which may help to encourage the cultivation of these very beautiful and curious plants. *C. spectabile*, *C. pubescens*, and *C. paviflorum* all grow naturally in cool and partially shaded swamps, and in cultivation need a deep, cool soil of leaf mold, or decayed peaty soil, which if not naturally moist should be kept so by frequent watering and mulching of decayed leaves, and they thrive better when planted in partial shade as on the north side of evergreens, though not under their drip. *C. acaule* I have never succeeded in keeping alive over two or three years, and after the first year it grows less and less. Its habit is very different from the others, it grows mostly in dry pine woods, often in light sandy soil, sending up its two leaves and flower through the thick carpet of pine needles. I think from observation the most certain way to domesticate it would be to sow the seeds in locations similar to where it naturally grows. The seed capsules are ripe by September. There is also a rare white variety of this species.

There are two other native species, *C. candidum*, of the Western States, and *C. arietinum*, a more northern species, not as showy as the others, but well worth cultivating, the former a pure white, the latter the smallest species, peculiar in form and color. They both will grow in cultivation, requiring similar soil and treatment to the more showy species first mentioned.

YUCCAS.

BY W. H. BOOMKAMP, PASSAIC, N. J.

Reading about propagating *Yuccas* by a lady of Charleston, S. C., in the GARDENER'S MONTHLY of February, I remembered the way some *Yuccas* are treated in Europe, which may perhaps be of interest to some of your readers. Some time ago, when employed in a nursery in Holland, we received some *Yucca gloriosa*, very strong plants, but the roots were so thick and wide apart that there was not a pot to be found to put them in. An old gardener gave me the following advice: Cut the roots, with a part of the stem, entirely away, leaving only three or four inches of stem under the crown; close the fresh cut by burning it with a hot iron, and put

the plant in coarse sand, under glass, taking care to keep the sand always in a wet state, and allow as much sunshine as possible. I followed his advice and found the *Yuccas* rooted in three weeks, and could pot them up in six-inch pots. A few of the old leaves turned yellow, but young green ones soon took their place. I afterwards tried the same with *dracenas*, also with the best results.

CALENDULA METEOR.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA, CANADA.

This much-praised plant, I think, will be short-lived; at least it will be so with me, when I can get rid of it. Two years ago I thought from its many recommendations we had got a yellow that would be of great use. Last year *Calendula meteor* was the worst weed I had to contend with. I allowed some clumps of it to remain, to see whether it would come true again. It did so. I should not compare our best strain of African Marigolds to it. I have had them as large and double as the finest *Dahlia*, and make a far finer show if cut back when young, so as to throw out many laterals.

[The note referred to, was given rather to encourage improvement in these old favorites, than as commending in any marked degree that variety.—Ed. G. M.]

CHESTNUT HYBRID ROSE.

BY ALEX. MESTON, ANDOVER, MASS.

Two years ago I received a plant of the above Rose, planted it in a deep, rich bed in the rose-house. The first year it made strong growth, which didn't ripen well, and I was awarded two blooms for my labor. Last spring I cut it well back, when it started vigorously again. I cut out the gross wood, leaving only medium-sized shoots, which ripened well, and I have now been cutting flowers from it for six weeks, the hand-somest roses of the kind I ever cut.

This rose is of the *Glorie de Dijon* type, strong grower, with large leathery leaves. The flowers often come singly, although sometimes in clusters of three or four, and are borne on good, long footstalks, which are very desirable. It should never be cut until fully open, as it is full to the centre and very double; form of flower, almost flat, and often measures five inches across.

The color of the flower is a purplish crimson, or, as some authorities have it, purplish maroon. At all events, it is a rather uncommon color

amongst tea roses; it lacks in one particular, being almost scentless.

[Is this not Cheshunt—not "Chestnut" Hybrid?—Ed. G. M.]

EDITORIAL NOTES.

WILD ROSES.—While we cannot ask any one to love less the beautiful roses of refined culture,

we ought not to forget the glorious charms of the wild rose. They make good sized bushes as ordinary shrubs do, and are covered often by thousands of flowers, giving out a perfume which even the pets of the florist might envy. But their greatest merit consists in the beautiful red "haws" or "hips," as the fruit is popularly called, which, if the frost is not severe, give the bushes beauty till near Christmas time.

There are many of these wild roses in Europe and Asia, as well as in our own part of the world, which are slowly finding their way into our gardens on this account. One of the most recent of these introductions of old wild things is the rose we now illustrate, *Rosa villosa*, a native of Northern Europe and Asia, and of which we believe a few plants have been introduced by Mr. Benz, of Long Island, and in a year or so may be freely in the market. It seems to have been first introduced into European gardens by Mr. Schultheis, of Steinfurth, in Germany, and we hope other wild species may be introduced by others.

REMOVING LARGE TREES.—It is said that Col.

Colt removed some elm trees four feet in diameter, and at a cost of \$1,000 per tree. Do any of our readers know anything of this, and what came of the experiment? Perhaps ten years ago the editor visited these gardens, but had not this exploit brought to his attention.

IMPROVEMENT AT WHITE SULPHUR SPRINGS.—

The writer had to express his surprise in these pages, after a visit to this celebrated Virginia summer resort in 1879, that in so cultured a place gardening should be so wholly ignored. It is a pleasure now to note that the management has become alive to the delinquency, and that the grounds are to be brought up to the floral demands of the age.



ROSA VILLOSA.

THE CALIFORNIA MAMMOTH TREE IN EUROPE.—Thousands have been tried in the Eastern United States and failed. They die from a species of fungus, which takes the oldest leaves first, and the branches die from below upwards during the summer season. The impression has been that they thrive well in Europe. With this belief the editor of this magazine was surprised to find no good specimens when on his

brief visit there a few years ago. The best were in the acclimitization gardens near Paris, and in the Royal Gardens at Osborne, in England. But even here they were failing. The respective gardeners attributed it to the "unfavorable soil at the roots," but it was evidently the work of the same old fungus. Of course the comparatively few places the editor had the chance to visit in so short a time, would not warrant a

belief that the failure was general, but a recent number of the *Garden* says that thousands of pounds have been spent on these trees with but "two or three spots" in which they succeed. "The tree is not really at home in England. It wants a warmer and more genial climate; otherwise it will die. There are hundreds of dead and half-dead specimens in our gardens and parks now to prove it, and where they are not dead, who cares for the aspect of a poor, thin, half-leafless evergreen?"

SCRAPS AND QUERIES.

RURAL CEMETERIES.—"S." says: "The first rural cemetery was Mt. Auburn, Boston; second, Laurel Hill, Philadelphia; third, Greenwood, New York; fourth, Spring Grove, Cincinnati."

BEDDING PENNYROYAL.—Wm. P. Harding, of Mount Holly, New Jersey, says: "My last summer's travel gave me many opportunities of seeing numerous things made use of in the modern style of flower gardening, as were never thought of a few years ago. And, as in the *MARCH MONTHLY*, you observe of the *Pilea* repens, 'it is an excellent plant as a green base to flower beds.' Its 'moss-like habit' eminently fits it for such a purpose. But possibly it has its equal, if not its superior, in the pretty little Gibraltar mint—*Mentha Pulegium* Gibraltica. It is by nature a dwarf, of but two or three inches high. With its very small leaves of light green color, and exceedingly dense habit of growth, it seems to be 'just the thing' wanted for either carpet beds or ribbon borders, and was duly appreciated at Rangenore, Chatsworth, Drakelow and other places where immense quantities were grown."

SUPERIOR HYACINTH.—"R. B. D.," Edenton, N. C., says: "I send you the first 'quadruple' hyacinth I ever saw, thinking it may be a sight even to you. The *GARDENER'S MONTHLY* is always interesting."

[This spike had the usual double flower in twin sets, and presented a very grand appearance.—Ed. G. M.]

EXTRA DOUBLE ISABELLA SPRUNT ROSE.—"H. R. A.," Saco, Me., says: "I cut a perfectly double rose from I. Sprunt. Is it usual for that to sport?"

[No,—but I. Sprunt is itself but a sport, and

some of its own buds may be expected to follow the parent's wayward ways.—Ed. G. M.]

ROSE, ETOILE DE LYON.—"W. A. R.," Louisville, Kentucky, writes: "We send you by this mail one of the first blooms of the new Tea Rose 'Etoile de Lyon.' You can judge somewhat of its size, and that it has a fine form, but it has not its usual color, which is much deeper."

[Certainly a very fine yellow variety.—Ed. G. M.]

VIOLET PRINCESS MARIE DE SAVOY.—A correspondent recently inquired about this. Mr. Peter Keifer, the originator of the Keifer Pear, places some flowers on our table. They are very double, with deep violet petals, having a white base, and of the great width of one and a half inches. The odor is delicious. The stems are very long, and altogether it is one of the best varieties grown.

FREMONTIA CALIFORNICA.—"W. L. F.," Hanover, Mass., writes: "I would like to ask 'Collector' in regard to *Fremontia*, about which he writes so instructively, whether the plants he mentions, as growing at the highest altitude, dwarfed by the cold, ever ripen seed? If they do, I should think plants raised from such would be much more likely to prove hardy in the Atlantic States. Also, whether 'Collector' has any experience as to the seeding habits of the *Dendromecon* and the *Cowanja Mexicana*, two other showy, yellow flowering shrubs of the mountain region of the Pacific Slope, which, however, would probably prove (tender?) in the Middle or Eastern States?"

[We shall be glad to hear from "Collector" as requested. So far as the writer's experience goes, California plants do not like Eastern summers. They get half dead, and then become tender during winter.—Ed. G. M.]

TALK ABOUT LILIES.—"F. A. B.," Philad'a., asks: "Can you not write out for the readers of the *GARDENER'S MONTHLY* the talk you gave on Lilies at the State Horticultural Society? By an abstract I saw in a Harrisburg paper, I am sure it would interest us all. There seems to me many novel points in it, you have not given us in the magazine."

It is perhaps unfortunate that the editor has not time to write out papers for public addresses. Wherever a few verbal remarks are acceptable, he does not mind offering them. This particular talk was taken down by a short-hand re-

porter, and will probably appear in the Proceedings of the Society. It would be too long for the GARDENER'S MONTHLY, even if written out. Perhaps the annexed very good abstract made by the reporter of the *Bucks Co. Intelligencer*, will satisfy our correspondent:

"Thomas Meehan, editor of the GARDENER'S MONTHLY, talked very interestingly about 'Lilies and other bulbs and how to grow them.' It was important to be successful in growing fruits, vegetables and grain that you may make money, he said, else you could more easily and better buy them; but what was the object of gaining money in this or any other way? We could eat but a certain amount, and wear but a certain amount. One of the most laudable objects was to surround yourselves with beauty which you and others could enjoy. Our physical comfort demanded beauty; and comfort, after a few of the essentials of life, depended much on the imagination. Fremont's men, when nearly frozen in the Rocky Mountains, ate in an Indian hut what they supposed to be dried fish, with great relish. When, however, they learned they had been eating dried worms, they sickened with the idea. Likewise, the Indian would believe a mess almost perfection, until it was whispered to him there was dog meat in it, and he too would become sick. You must cultivate the beautiful, the ideal, or you lose half the value of life. They add charms the practical cannot always give. Oscar Wilde says we love the lily only for its beauty. This I think a mistake. There are associations connected with it which add to its value. The imagination comes in to lend a charm—it is one of the oldest of known flowers, its history goes back two thousand years, its meaning is the 'Flower of all flowers.' The ancients claimed for it divine origin—their tradition being that it grew from a globule of milk dropped by Juno; hence its purity. There are lessons in the formation and habits of the flower that are useful to the fruit growers. The same causes that produce colored leaves in

the autumn produce flowers earlier. Color is not caused altogether by chemical action. It is the different degrees of heat that cause leaf and flower; the flower grows through the winter; it takes less heat to make a flower bud than a leaf bud; hence you should discourage the growth of flower buds in winter. Late in the fall these buds on the peach and other trees begin to swell, and they grow all winter. If they grow too fast the frosts kill them, but the leaf buds do not grow and are never killed—hence whatever will retard the growth of buds will benefit the trees. Mulching will often prove of benefit, in keeping the sun's rays and air from the roots. The growth of plants is not continuous as is generally supposed. It is by waves they grow and rest; until a lily flower is fertilized it droops; hence when the lily first opens it bends towards the earth; as soon as fertilized it changes its position and turns out from the stock, and if it is to seed, becomes erect. This knowledge is important to those desiring to change the character of plants by fertilization. They need not wait years to know if the cross was effective. The lily family is of Arctic origin. Its main home is near the regions of perpetual snow. In Siberia and the northern part of China and Japan they abound, while at the Gulf of Mexico there is but one species. This must be remembered in planting the lily. It wants a cool, moist place, and should be planted deep, that the sun may not injure the roots; six inches is not too deep. The root is subject to fungus, which is very destructive. The growers understand this in Japan where they propagate these plants; hence they are encased in clay that they may be entirely protected from its contact. It would be well for those growing lilies here to remember this, and use nothing but well rotted manure. Lilies may be propagated slowly by offsets, but florists understand a quicker way of getting a supply; they separate the scales of the bulb and plant each scale. New bulbs form on them and new plants are started."

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

TROPICAL ORCHIDS IN OPEN AIR OF SUMMER.

BY C. H. S.

In the April number of the GARDENER'S MONTHLY, Mr. Taplin wants to know if "C. H. S." has had any experience in growing orchids

under the shade of trees in the summer. About eight years ago a friend of mine went to Europe in June, and requested me to give a little attention to his plants until he came back in September. I found that he had put his orchids, about one hundred and fifty plants, on a long table to the north side of his house, where the sun only came for a couple of hours in the morning. There was a thick awning but this was only run

down to keep off the heavy rains; all the rest of the time the plants were fully exposed. All were in pots or baskets, and were watered every morning and syringed overhead late in the evening. The lot came from Van Houtte and consisted of *Ærides*, *Vanda*, *Dendrobis*, *Lælias*, *Oncids*, and *Cypripediums*. Two or three died, but I think they were in bad health when put out. When taken into the house about October 1st, all were in good health and very clean. They had not made as much growth as I have often seen made under glass, but it was very solid. At another time I was altering one of my greenhouses, and finding that some of my orchids were in the way, I put them out in the open air, where they were shaded from the midday sun. I do not remember what species I put out, but *Sobralia macrantha*, some *Cattleyas* and *Epidendrums* bloomed very well, and all did well. I am sure that many of our orchids are too much shaded, and that growths are slender and soft. Any one who has handled newly imported orchids must have noticed that quite small bulbs of different species have bloomed, and this was no doubt owing to the fact they got more air and sun and were better ripened. The writer spent many years in the tropics, and rarely remembers seeing orchids growing in dense shade, and *Cattleyas*, *Lælias* and many *Oncids* seem to like plenty of sun. I have seen thirty days together in Brazil without a drop of rain, and the thermometer stood all the time from 65° to 90°, with hot, drying winds. All orchids coming from elevated points are subject to great change of temperature on the same day. I am sure I have seen a 50° change from 4 A. M. until midday. I have lost more orchids by keeping them too hot and damp than by dryness, and this is the cause that so many newly imported orchids are lost. We are so anxious to get them into growth that we often damp off the young growth, and it may be months before there is another new growth. I believe that most orchids are better started on blocks of wood, with a little moss, and then put in baskets or pots when established.

STEAM HEATING IN CHICAGO.

BY W. D. ALLEN, CHICAGO, ILL.

By what authority does Walter M. Taber, of Detroit, Mich., state in the *GARDENER'S MONTHLY* of February, 1882, that steam heating in Chicago has not proved a success? If he will refer to the

GARDENER'S MONTHLY of October, 1873, he will find an article on page 303, written by myself, on steam heating, and radiating in the same manner he now thinks such a success; in fact it is a success. But as I added greenhouses, and enlarged those already built, I found there was a waste of steam in using two-inch pipe, and radiating the way I was doing. Consequently, I take steam from the dome of the boiler in a one-inch pipe, and heat the last-built houses, and have taken out all of the two-inch pipe save about twelve feet, and would have dispensed with that had it not already been in the boiler. From the two-inch pipe I take six one inch pipes for the heating of the other houses.

I grow and use more cut flowers for my business than all the other greenhouses heated by hot water in and about Chicago. My business has frequently taken me to their houses for the past eight years for cut flowers, and I can but seldom find what I want to use in my business. In greenhouses heated by steam, flowers are more abundant.

I think if florists were not so negligent in comparing notes of their experience and results through the *MONTHLY*, we would advance more in improvements, with better results.

RONDOLETIA SPECIOSA MAJOR.

BY C. E. PARNELL, GARDENER TO W. D. F. MANICE, ESQ., QUEENS, L. I.

The showy *Rondeletia*—*Rondeletia speciosa* major is a comparatively rare evergreen stove or hothouse plant belonging to the natural order Cinchonaceæ. It forms, when full grown, a dwarf shrub of compact habit from five to seven feet in height, the young branches having a drooping habit, and produces its richly colored flowers in large terminal corymbs in the greatest profusion from September to January. The leaves are of a glossy green color, and as the flowers are remarkably firm in texture, they remain in perfection for a considerable length of time. The individual flowers in size and shape somewhat resemble those of a *Phlox*. In color they are of a rich orange, gradually becoming lighter towards the centre.

It is unfortunately a plant of slow growth, and many years must elapse before one can obtain a satisfactory specimen; but when once obtained it will be found well worth all the time and care bestowed upon it. It requires, and must have, good drainage, and requires a compost com-

posed of two-thirds fibry loam, one third leaf mould, and enough sand to keep the compost open, and during the winter season a temperature of from 55° to 60° Fahrenheit. During the summer season the plant, if small, can be planted out, or if large plunged in the border fully exposed to the sun, but on account of the fibrous character of the roots great care is necessary at all times to give it a sufficient supply of water, for if allowed to become very dry the plant will be severely injured, and if this is repeated several times the plant will almost, if not entirely, be destroyed.

When in the house the *Rondeletia* should be freely and frequently syringed, and during the blooming season a weekly watering of liquid manure water will be found to be of great benefit to it. It is an essential point in the cultivation of this plant to fully expose it to the sun during the summer season in order to enable it to flower to perfection.

Our plant is about nine and one-half feet high, with a head four feet in diameter, and is growing in a tub three feet in diameter, and when in full bloom is a remarkably attractive plant.

As I do not see its name even mentioned in but few of the catalogues of our florists, I hope that these few brief remarks will be the means of calling the attention of some of our plant growers to this attractive and desirable plant.

STEAM HEATING.

BY A. B. FOWLER, BOSTON.

I am glad to see that at last we are beginning to awaken the astute minds of the florists to the fact that steam is the best heat for them, and I trust your modesty will not cause you to blush when I ascribe to your kindly offices much of the benefit which in the future will accrue to those who have taken the hint and struck out in the new direction. Truly there seems to be fire all along the line—Pittsburg, Detroit, Boston. But where are our New York friends? They are not wont to be so conservative. I think friend Taber has made a little mistake, or, possibly, your printers have made one for him. He quotes from my former letter, "Regarding the larger pipes, their cost is nearly double that of the smaller, and if the latter can be made as effective, this is surely a saving." Now that is all correct, and what I said I meant; nor do I yet see any reason to change my mind. Then

he says: "While I do not see any advantage of large pipes over small, except in cheapness, Mr. Fowler must know that more heat is obtained from one two-inch pipe than from two one-inch pipes."

The impression I intended to convey in the letter from which he quotes, was, that two-inch pipe was more costly than one-inch. My authority being the general price-list of pipe, which reads that the price per foot of two-inch pipe is forty-six cents, while one-inch is nineteen cents per foot.

Now, by referring to Dennett's table of surfaces of pipe, I find that two feet of one-inch pipe more than equals one foot of two-inch. So, since the surface exposed is what we desire for heating, we see that the two feet of one-inch pipe not only costs eight cents less, but also presents more surface than one foot of two-inch. Of course, this is a small matter, and I notice it not for the sake of discussion, but merely from the desire to correct any wrong impression which may have been given. I believe I had the honor of being Mr. Taber's correspondent at the establishment of R. G. Parker & Co. So we have met very pleasantly before, as I trust we may do again.

FUMIGATING.

BY W. FALCONER.

Thrips and aphides succumb to tobacco smoke, but in order to make fumigating effectual for thrips repeated doses are necessary. It is not the amount of smoke that hurts the plants, but the hot smoke. Cold smoke does no injury. When plants are being fumigated their leaves and stems should be dry. Never fumigate in the daytime in sunny or windy weather; evenings and rainy days are the preferable times. Syringe your plants the morning after fumigating. Red spiders, scales, mealy bugs, cockroaches and weevils are smoke proof.

EDITORIAL NOTES.

ORCHID GROWING—The extent to which the culture of orchids has reached, since the *GARDENER'S MONTHLY* and other magazines have done so much to simplify the mystery with which the older times loved to surround their treatment, is very remarkable. Almost every one who has a greenhouse now has a few orchids,

and they are almost always present in some collections at horticultural exhibitions. At the March meeting of the Germantown Horticultural Society, Mr. Wm. Jamison, gardener to Geo. L. Harrison, Esq., had a fine plant of the rare and beautiful *Phalænopsis grandiflora*, one

of the moth orchids. *Cypripedium villosum* was shown by Alexander Young, gardener to Mr. R. S. Mason, and the old but very beautiful



CROTON RECURVIFOLIUS. (See opposite page.)

tural Society, Mr. Wm. Jamison, gardener to Geo. L. Harrison, Esq., had a fine plant of the rare and beautiful *Phalænopsis grandiflora*, one

Bletia Tankervilleæ or *Phajus grandiflorus*, as its name is considered more properly to be. This last seems to have bloomed more freely every-

where this year than last, and leads one to suspect that even in the hands of good gardeners, greenhouse flowers have their seasons. The Phajus is popular as a cut-flower, as indeed most orchids are.

THE HARRIS LILY.—This very beautiful variety of the Japan *Lilium longiflorum* proves its popularity by the number of new names it is receiving. Among the latest seems to be "The New Bermuda Lily." Though a native of Japan it seems to have become partially naturalized in Bermuda, and some having had their stock direct from Bermuda, is the reason perhaps for the creation of so many names. However, the number of names will not be of much consequence so long as all understand they belong to one thing.

STEAM HEATING.—This promises to be the greatest blessing to floriculture ever introduced. There are thousands of people who would gladly have small conservatories attached to their dwelling houses if only the heating troubles could be gotten over. When a dwelling house is steam-heated, it is the easiest possible thing to extend a few steam pipes to the conservatory.

BRIDAL BOUQUETS.—The London *Journal of Horticulture* tells how these are made in England: "It should be nine to ten inches in diameter, the surface slightly convex, broken occasionally by a raised flower or spray of Maiden-hair Fern, *Selaginella cesia*, or *Pelargonium filicifolium odoratum*. Three or four stems may be left long enough to reach to the bottom of the bouquet-holder, but all the others should be shortened to an inch or two, enveloped in damp cotton wool, which is bound on securely with fine brass wire, enough wire being left on to form an artificial stem. Prepare sufficient flowers and spray beforehand, and also have ready a handful of damp cotton wool; then proceed from the centre outwards, not with formal circles, each of one kind of flower, but with a skilful, tasteful blending of form with form sufficiently to impart relief and variety. Or there may be a grouping of three or four flowers of each sort without any approach to heaviness. Prevent crowding and confusion by pads of the damp cotton wool between the flowers, drawing out the wool of each pad at the bottom sufficiently to enable you to twist it two or three times around one of the wire stems, so that there may be no risk of any being shaken out while

the bouquet is being used. The damp wool also serves to keep the flowers fresh and unwithered. If the bouquet has to be made some hours before it is used, avoid all flowers that shed easily—white Jasmine is very prone to shed its flowers soon after they are cut. Twist the wire stems securely together so that no flower can be displaced, and make the bottom of the bouquet level, so that the bouquet paper may easily be slipped up close under the flowers and kept there by sewing it to them with a needle and white cotton."

NEW OR RARE PLANTS.

CROTON RECURVIFOLIUS (see illustration).—The English people never seem to tire of new Crotons. They are among the gayest of their hot-house plants. In our country there is the additional advantage that they thrive admirably in the open air during the summer season. No one has yet thought to have beds of the different varieties, as we have of coleus, but such a bed would be charming if judiciously arranged. We give with this one of the newest, an introduction of Messrs. J. Veitch & Sons, of Chelsea, near London. It is thus described: A very fine and distinct broad-leaved variety of dense habit and with recurved foliage far superior to the well-known *C. volutus*. The midribs and veins, which are crimson bordered with yellow, are much sunk, giving the upper surface of the leaves a ridged and waved appearance. The variegation is well-marked and the contrast of the different tints to the deep olive green ground color is very pleasing.

SCRAPS AND QUERIES.

ISOTOMA LONGIFLORA.—John G. Eisele says: "In regard to what Mr. De Niedman volunteered to state in the February number of the *GARDENER'S MONTHLY*, concerning *I. longiflora*: First, I received the seed from which I raised the plants from a friend at Tampico, Mexico. There, I was told, the flower is a favorite, and bears the poetical name of "Estrella del Mer." To be sure, Tampico lies pretty well south—below the Tropic of Cancer—and has consequently rather a warm climate; but nevertheless, especially in the beginning of winter, it is not seldom severely exposed to the cold northern winds, sweeping down from

Texas. The blooming time of *I. longiflora* falls between October and January; and that fact made me think that it was not, strictly speaking, a stove-plant, and must not be treated as such, although it may thrive well in an orchid house, like *Pteris trimula*. I kept the specimens I succeeded in raising, in a temperature of from 50° to 65°, mostly in a Rose house, on the ground, where the Tea Roses are planted, in and between the rose bushes, knowing that they will thrive well in the shade, which they did, and merrily went on blooming. I often cut from one good-sized plant in a six inch pot, from four to six flowers a day, and as the flower was a novelty in this market, it readily brought two cents apiece. We ourselves used it freely in our designs, and found that just that peculiar length of the flower tube was the strikingly pleasing feature in it. We could either let it stick out and produce its whole length, or we somewhat clipped it (the tube) below, and then applied it according to circumstances, to taste, and so pleased all.

I concede, that the flower cannot in truth be called a very desirable one; yet we found it anyhow as lasting as the Jasmine or Azalea flowers. Florists, here and elsewhere, have offered and sent us voluntarily flattering testimonials as to its value as a cut flower. That the plant is an annual, I am, so far, inclined to doubt, as, after blooming, it puts out numerous sprouts or shoots from the roots. For rockeries, as Mr. De Niedman suggests, I do not consider it suitable or fit at all; at least not in this latitude, for the obvious reason that it blooms too late in fall.

As to the poisonous properties of the plant in any or all of its parts, of which Mr. De Niedman talks, I can only say, I have not observed anything marked about it. Of course, any one who puts one of the flowers into his mouth and masticates it, may feel a kind of a burning sensation on his tongue; but that is the case with many. Many a highly-priced ornamental plant will have some kind of acid. I found the seed of *I. longiflora* mentioned as something rare, even in the seed.

Catalogues of Haage & Schmidt, in Erfurt, Germany, and *I. axillaris* and *Brownii*, I often meet in some European gardens. Mr. De Niedman tries to make even the odors of *Isotoma* suspected, if not odious. I do not remember having seen or heard much of flowers emitting poison. At any rate, if we are going to discard all

poisonous and suspicious plants we are carefully cultivating and highly prizing, we would have to discard and to miss some of our most beautiful favorites in the garden, as, for instance: *Azalea pontica*, *Aconitum*, *Euphorbia*, *Calla*, *Solanum*, *Oleander*, *Ranunculi*, *Laurus cerasus*, *Arum*, *Helleborus niger*, *Digitalis*, *Dativia*, *Kalmia*, and last, if not least, *Daphne*, which *Phytochemie* designates as poisonous. All this is only to say, that what I stated in the December number of this journal about *I. longiflora*, was no exaggeration or fiction, but the naked truth. That any plant, newly introduced, brought into public notice, has to stand the cross-fire of the critics, is an old, well-known fact, and I don't complain of it.

[In justice to Mr. Eisele, it should be said that we had never seen the plant before, and we had to give him the name from botanical analysis alone. He is justified in regarding it as rather rare under culture. He is also one of the most intelligent of the rising race of commercial florists in Philadelphia, and well qualified to judge of an acceptable cut flower. It is true, as Mr. De N. says, that the sweet odor of the flower has the reputation among the Caribbeans of producing headaches, but we have known South Carolinians cut down *Gardenias* for the same reason.—Ed. G. M.]

CONOCLINIUM IANTHINUM.—This is the name of the flower sent by J. B. Sacramento, California.

STRELITZIA REGINÆ.—"H. G. C." asks: "Can any of the readers of the *GARDENER'S MONTHLY* give me any information on the cultivation of the *Strelitzias reginæ*, or juncea? Do they require stove or greenhouse temperature?"

[They thrive very well if planted out in a warm, sunny place, in rather damp, rich soil, during summer, and repotted in autumn. They do not require great heat in winter.—Ed. G. M.]

BLUE CARPET BEDDER.—"F. N. J." asks: "What is your own opinion of the best blue carpet bedder, after all the discussion there has been on the subject?"

[We do not think just what is needed has yet been suggested. It is to be remembered that the question was for a plant that would not grow more than a few inches high,—something that would do for the blue in a flag. We think *Loebelia*, as at first suggested, is the best, but it must be continually nipped back; for if left to seed it will die out before the season is over.

The next best thing seems to be some of the dwarf varieties of *Eupatorium*.—Ed. G. M.]

NEW CESTRUM.—"J. W.," Louisville, Ky., says: "Mr. Rafferty, a florist here, has a seedling *Cestrum*, which I think is distinct. The seed was taken off *Cestrum Parquii*, but this one turned out pale yellow, a shade lighter than *aurantiacum*, open all the time, and gives off its fragrance during the night, same as *Parquii*, and has no bad odor like *aurantiacum*. Will be glad to know what you think of it."

[This ought to be a valuable variety.—Ed. G. M.]

QUERIES ON STEAM HEATING.—"William H. B.," Independence, Kansas, says: "The talks on steam-heating are becoming very interesting to me. I use flues, and am away from the line of trade between great propagators. I wish a little information. First, I observe that water must boil to create steam. Now, for night heat, must some one attend to the fires to keep the water boiling, or do we start into the night with a pressure, or supply of steam, to last through? Again, can the steam-pipes be carried in any direction, and raised or lowered at pleasure, without affecting the result; or, is it like hot water, hottest at the highest point? Could one heat their dwelling from same boiler? Could I use a dismantled threshing machine boiler? Is it best to place the boiler inside the house with only the front in the shed, as we do other apparatus; if so, would it not be too hot for anything directly over the boiler? How high a pressure is carried, and how far can steam be carried under cover, and how far under ground between disconnected houses?"

WINTER BLOOMING WHITE FLOWER.—"R. L. B.," wants a better winter white flower than *Stevia* or *Eupatorium* affords. What shall it be?

BLACK FLEA ON HELIOTROPE.—"Florist," Des Moines, Iowa, says: "A little black flea in spring attacks my *Heliotropes*, *Primroses*, *Sweet Alysium* and other plants, and works great destruction to their foliage. What can I do to destroy him, or prevent his ravages? So far, the only remedy I have found is hand-picking in the early morning, when he is chilled. Am also troubled in summer with another insect on the upper and under sides of foliage of *Callas* and *Farfugiums*. Under an eye-glass it looks like a small red ant, with a long, sharp snout. After its attacks, the leaves look blistered, and are spoiled."

[The editor saw what he presumes the same insect, on some *Heliotropes* at North Bend, Ohio, last summer. It is not known East, so far as we know.—Ed. G. M.]

POINSETTA PULCHERRIMA.—"W. S. B." asks: "Can I grow the *Poinsetta pulcherrima* from seed; if so, where can I get it? I do not find it in any of the many catalogues. I can find the plant advertised."

[It rarely, if ever, perfects its seeds under cultivation. It is always raised from cuttings.—Ed. G. M.]

THE DETROIT CARNATIONS.—August D. Mylius, Detroit, Mich., says: "The small article I sent you about Mr. Hinze's Red and White Carnations, which you kindly inserted in January number, resulted in a great many inquiries, which I undertook, with Mr. Hinze's consent, to answer. I wrote you another article which did not appear. In that, I told all that inquired the truth about these two Carnations. All I knew was according to Mr. Hinze's statement, as he told me himself. A number inquired for plants, so I told some if the price I gave them was satisfactory, I would advertise the two varieties—White, at \$6 per 100; Red, \$5 per 100—which I did, after receiving satisfactory answer. I advertised the plants I had propagated for my trade (cut flower). But I had no intention of advertising at all at the time I wrote the article to you last December. A few days ago, I heard from Mr. John Breitmeyer, that he intended to write an article for the MONTHLY concerning these advertisements—Mr. Taber's and mine—as if I were infringing on his Carnation circular. I put an honest advertisement in the MONTHLY. If my plants don't suit, it is my loss. What Mr. Taber does is none of my business; but I want it distinctly understood by Mr. Breitmeyer that I knew nothing concerning Taber's advertisement, till noticing it in the MONTHLY. I called the Carnations Hinze's Seedlings because more know them by that name than any other, and, besides, he is the originator of these two. I cannot help if Taber calls them 'Garfield and Blaine.' If Mr. Breitmeyer has a seedling he calls 'Garfield,' that is not the same as Mr. Taber's, and has nothing to do with me, and I hope you will see that my name is not mixed up with Mr. Breitmeyer and Mr. Taber. But I know you will see justice done."

"And concerning the steam article, Mr. Breitmeyer said that only Mr. Taber and I had any-

thing to say. I understand that Mr. Breitmeyer will put in steam the next time he builds green-houses. I cannot help if Mr. Taber writes on the same subject. I have only stated facts as I know them. Mr. Breitmeyer can say nothing about steam, because he has none in his houses."

[As already noted, this letter was received before the one from Mr. Breitmeyer appeared in our last. It seemed important that if there were

any confusion in names of the Carnations it should be known.

Perhaps if the paper Mr. M. refers to had appeared, Mr. B.'s communication would not have been needed. It was held back for a little revision, for which the editor had not found the time required.

As the matter now stands, the points we think are clear, and will not need any further correspondence.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

UNIVERSAL SIDE CLEFT CRAFTING.

BY WOODBRIDGE STRONG, NEW BRUNSWICK, N. J.

In the spring of 1881, I practiced with much success a method of grafting, which I submit for trial to the readers of the GARDENER'S MONTHLY interested in the subject.

I cut the scions with shears into pieces of one, two or three buds, with from one to two inches of wood below the lowest bud, but prefer scions with only one bud. I then seat myself at a table, upon which a soft piece of pine used with smooth surface has been fastened, and with thumb and finger of the left hand take hold of the scion at the top bud, and rest its lower end on the board, holding the scion nearly perpendicularly, while with a thin, sharp knife, I make a downward oblique cut in a straight line five or six-eighths of an inch long, to and through the centre of the lower end of the scion, thus making one side a wedge.

This done, I turn the scion over, lay the cut side flat down upon the board and shave off its other side in like manner, but about one quarter of one inch less in length than the side first cut, making a sharp wedge, say six-eighths of an inch long on one side, and four-eighths of an inch on the other side. I use a budding knife, and scions can thus be prepared with much rapidity and uniformity.

I generally prepare about thirty scions in this

way at a time, and put them in a dish with water, to keep them fresh until set, and then immediately proceed to set them.

If the limb or stock is an inch and a-half thick or more, and sufficiently firm, I take a thick, sharp chisel a quarter to three eighths of an inch wide, and with a hammer and the longest or straight side of the chisel inside, next the stock, make a cut obliquely downward into the stock, towards its centre, through the bark and into the hard wood, deep enough to receive the whole of the wedge part of the scion. Then with the hammer I drive the scion lightly down into the cut, with the longest side of the wedge inside next the stock, so that when done the scion will stand off from the stock, at an angle of about forty-five degrees, or about the angle that young limbs usually make with the stock from which they grow, and so that the cut bark on the shoulder of the longest side of the wedge will rest firmly against the cut part of the bark of the stock where the chisel first entered it. Or, with a thin, sharp knife blade and the hammer, I make a broad cut downward in the same direction, and of the same depth, into the hard wood, and set in this cut two scions diverging like the sides of the letter V.

It is safer not to drive the scion down quite to the shoulder, than to drive it at all past that point; for if driven too far, no part of the cut bark of stock and scion will touch each other, and the operation will fail, while if not driven quite to the shoulder the cut bark on each side

of the slope on the scion will cross and touch the cut bark on the stock, and will almost always thus form a union.

If the scions are to be set in limb or stock too small to stand firm under the hammer and chisel, then with a thin, sharp knife-blade I make a straight oblique cut down and towards the cen-

stock. And when the scion and stock are of nearly the same size, I fit one side at least of the scion with one side of the stock.

When the scion is set, if the stock is too small to close upon and firmly hold it, I tie the stock and scion as in other processes; but in all large limbs and stocks, if the operation is fairly well done, the stock will hold the scion firmly without any ligature.

The scion being thus set, if not tied, I next with a quarter or half-inch wide flat sash paint brush, fill every part of the cut about the scion with melted, but not hot, grafting wax, or with cold, liquid grafting wax, and if the graft has been tied, I cover all exposed cut parts, and then bandage with the wax.

In root-grafting young stock, I always tie with woolen yarn and wax all the yarn in above manner, except a line on the bark of the stock or root, which I leave exposed to the ground and weather to rot off as growth proceeds.

In all cases I leave the end of the stock an inch or so longer than the end of the scion, so that buds on the stock may draw the sap up to and above the point of intended union, and this greatly aids the success of the operation.

When the scion starts to grow, I rub off the sprouting buds on the stock, and in time cut the stock off just above the graft, in all cases where the scion is set at or intended to grow from the end of the stock.

But in re-topping large trees, and in grafting limbs, I frequently put in a scion near the end of the limb by this process, as in the end by other methods, and then set other scions along the limb in its sides whenever new branches are desired, even in a limb or trunk six inches or more in diameter.

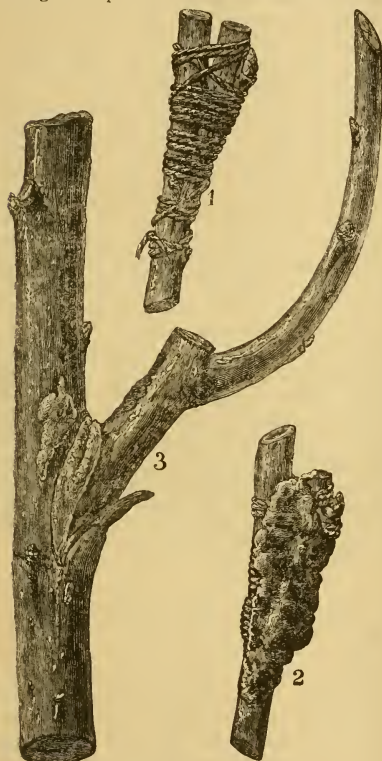
With care and good judgment, a tree can thus be made symmetrical, and long, bare limbs can be covered with a new growth of branches. But of course, the scions that are nearest the end of the limb, will push the most vigorously, and the strength of the growth of all will depend largely upon the extent to which the tree is headed in or cut back.

To sum up some of the advantages of this method as they impress me, I submit:

1st. That scions can be set far more rapidly than by any other process.

2nd. That the operation is more uniformly successful.

3rd. That in most cases all tying and untying as growth proceeds, and re-tying to prevent



SIDE CLEFT GRAFTING.

1. Graft set in and tied with worsted.
2. The same covered with wax.
3. The same when one year old.

tre of the limb or stock into the hard wood, deep enough to receive the wedge part of the scion, and then set the scion in this cut precisely as in the cut made with the chisel.

Stocks and scions of nearly the same size can be grafted in this way with great rapidity and success. But of course, the smaller the stock, the more nearly perpendicular will be the cut in it to receive the scion, and when set the scion will, in many cases, be nearly parallel with the

blowing out, are dispensed with, and the scion stands firmly in the hard wood from its first insertion, and is able to take care of itself against ordinary winds.

4th. That limbs can be thus provided whenever taste or utility may suggest.

In all other methods of side grafting, I believe the union is attempted to be made only in and under the bark, and such grafts are apt to be blown out, unless time and care are bestowed on them while growing.

Let me add, that in all processes of grafting, there are great advantages in using short scions—one bud or joint is enough—because there is less surface for evaporation, which is a frequent cause of scions failing to unite with the stock.

They are also less liable to be knocked loose by birds perching on them, or by other means; and the nearer the new growth starts from the stock, the less is the leverage for the winds to act upon, and the less the danger of the graft being blown out.

As an additional guard against evaporation, I always, when waxing the grafts, cover the cut top of the scion with grafting wax.

During the past winter I have collar-grafted by this method some twenty-five hundred pear and plum stocks, and shall set them out this spring, with hopes of much success.

I have also in mind some variations of the process which may be improvements, and will be tested this spring and coming summer.

In cases where the stock or limb to be grafted is more than three quarters of an inch thick, it will be best to set scions in the end of it, by ordinary cleft grafting, or by crown grafting under the bark, and at the same time put in scions in the sides of the limb or stock as wanted. These grafts in the end of such large stocks or limbs will be needed to grow over and heal the stump properly.

[We regard this as one of the best contributions we have received for a long time. The mode is so simple that the only wonder is that it has not been in practice long ago. Perhaps it has, for generally there are plenty of people who know things after other people have told all about them. One thing is certain, this simple plan has never been published.—Ed. G. M.]

FIG CULTURE AGAIN.

BY G. F. NEEDHAM, WASHINGTON, D. C.

We, at the North, are now growing tropical and semi-tropical fruits, to wit, melons, cucum-

bers, tomatoes, etc. I wish we would add the fig to the list. General Worthington of Ohio, who has cultivated the fig in the open air for more than fifty years, says that he grows more of this fruit on the same space of ground than he can of potatoes or tomatoes.

Your reference to fig culture in France and Germany, (March number, page 79,) is pertinent and timely; but by my method of planting the trees, the winter protection is made very easy.

The great thing in growing trees, etc., is to be able to ripen the wood. Unripe wood causes the death of the peach and other trees. Fig wood can be ripened as well as can the wood of other trees. Of course if we cannot have fruits without winter protection, we will want to cultivate all the same. At the far north, grape vines, raspberry bushes, peach trees, etc., have to be protected, and it pays, for the people must have fruit. So then if our fig tree is laid down and nicely covered, no matter how cold, it is not disturbed more than any other sleeper.

An American gentleman residing at Brighton, England, has sent me the leaf of a fig tree planted by Thos. a'Becket more than 800 years since, and a photographic view of the fig orchard in which this tree is now growing. Well, if in that moist and dark climate figs are grown successfully, how much more in our sunny climate? I would like to send my pamphlet "Fig culture at the North a success," three editions, to any party inclosing five cents.

EDITORIAL NOTES.

RELATION BETWEEN SEEDS AND QUALITY.—Dr. Sturtevant finds those melons which have an abundance of seeds to be inferior in eating qualities. This does not probably hold good in all fruits. The Rutter Pear which has rarely seeds, is remarkably good when only a few are allowed to bear. When over-bearing, as it usually does, it is a worthless fruit. The inference is that quality depends on something else than the ability to bear seeds.

PEACH YELLOWS.—It is interesting to note the great progress which has been made of late years in the knowledge of this disease. It is many years since the writer of this paragraph demonstrated that in the early stages of the disease, the roots of the peach tree are covered by the mycelium of a species of *Agaricus*, a fungus to

which genus the well known Mushroom belongs. That this fungus by feeding on the roots, is certainly connected with the disease, he proved by taking spades full of the earth, and placing them around healthy trees, when the "yellows" resulted. Other trees also received the fungus and the yellows followed, especially the Norway spruce, white spruce, and white pine. Indeed the development of the disease after this inoculation with the root fungus, is more clearly traced and its operation better understood in the Norway spruce than in the peach tree itself. Some years ago, the writer of this was on a steamer going down the James River, and was called on by some horticulturists to go over again for their benefit some account of these views. But a distinguished gentleman rose and protested against this waste of time, as in his opinion "no one knew anything of the yellows, nor would people ever know more than they did now," at least this is the record as made on our note book at the time. In the *Country Gentleman's* report of the recent meeting of the Western New York Horticultural Society we find the following: "Dr. Hexamer mentioned cases of success in treatment of yellows, where the soil was drawn away and hot soap applied, the soap containing the potash required." From this we infer that Dr. Hexamer is at least satisfied that the remedy can be reached through the roots, whether the cause of the trouble be there or not, and that we may after all not despair of knowing something about it sometime.

LICHENS AND TREE FUNGI.—Though the "Ice-land moss," a species of Lichen is known somewhat in our cookery, it is perhaps the only one of this class which is used by us. In Japan there seems to be a great number of desirable kinds, judging by the following which we take from Mr. Maries' exceedingly interesting communications to Mr. Robinson's *Garden*: "I continued my rambles about the mountains at Sapporo for ten days, and we had many delicacies in the way of food. We always had plenty of fungi; some from the Birch (*Betula alba*) tasted like mutton; others from Oak trees; the celebrated Mats taki from the Fir trees (we had venison steak always with this); another fungus like masses of miniature deer-horns was excellent in Japanese soup."

STUMP PULLERS.—The Australian papers are worrying over the fact that it takes over a dollar and a half worth of dynamite to blow up a stump. Better get an American stump pulling machine.

THE GRAPE VINE MILDEW.—This, the small fungus known as *Oidium Tuckeri*, and which made such consternation among European grape growers a few years ago, is so easily destroyed by the use of the sulphur bellows, that no one fears it now. At one time it was believed that fungus would never attack healthy vegetation, but the healthiness of a grape vine soon after the sulphur has killed the fungus shows something is wrong with the old idea.

THE FOREIGN GRAPE IN AMERICA.—As is now generally known, the foreign varieties of the grape do not well in the Eastern United States, apparently from the dryness of the atmosphere, for they do very well when covered by glass so as to make the air about them humid; yet they do well in the dry atmosphere of Utah. A correspondent of the *Country Gentleman* notes their success at Brigham City.

GLUT IN THE APPLE MARKET.—Mr. Thos C. Thurlow, in an admirable address on apple culture, at West Newberry, Mass., remarked that the only glut from apple culture would be from poor fruit, which it would pay better to feed to cattle than send to market. The prices of first-class apples have been steadily rising for the past ten years, and first-class fruit will always sell at paying prices.

RAMIE.—A few years ago much was expected from the fibre of *Urtica nivea*, the China grass or Ramie. The last we heard of it was that the fibre could not be profitably cleaned unless some improved machinery could be invented. Recently, as we have reason to believe, some one has been successful, and a demand for it is springing up. Can any reader give us the latest intelligence about it?

MAGNESIAN LIMESTONE.—Can any reader inform "C." whether there is any kind of soil on which magnesian limestone is better than limestone free of magnesia? As a general thing, "C." has found magnesian limestone worse than no lime at all.

AMERICAN JUTE.—In answer to our inquiry as to this "rare plant which is to be introduced from the East Indies to Florida," we find that it is not the jute—the real *Corchorus*—but our old friend of the past century, *Abutilon Avicennæ*, and which has already a dozen or more of common names, such as Velvet Leaf, Devil's Plant, Indian Mallow, Cake Seed, and is known as a common weed in corn and potato fields all over

the Atlantic portion of the United States. We fear, as we have often said, that its branching habit will always be against its successful competition with hemp.

We find the story is repeated in the Western papers that a "Camden firm" offers eight dollars a ton for it, and wants it badly. If so, and there is any profit in it, the "Camden firm" can find plenty of farms to rent near them whereon they can raise it themselves. It is probably some half a dozen years ago since we first saw about the wants of this "Camden firm." They must be starving by this time.

BOTTLING GRAPES.—Some late Grapes, Black Alicante for instance, have the bunch so close to the old wood that, no matter how closely the young wood may be cut in, there is often not enough wood to insert into the neck of the bottle and allow of the bunch hanging clear. In such cases the wood above the bunch may be inserted instead, and it will be found to answer equally well, as we have proved. All fresh cuts should be dressed with shellac.—*Garden.*

FRUIT CULTURE IN ENGLAND.—This is receiving much more attention than it once did. The *Garden* notes that at a recent exhibition over 200 plates of apples were presented, and it justly remarks that at least as many premiums should be offered for fruit as for potatoes.

DETERIORATION OF THE STRAWBERRY.—Many of the Ohio fruit growers believe that the continual propagation from runners of any one variety, will induce it to run out in time. We do believe that when once a bed of strawberries has the spotted leaf, or other disease, continual propagation from these will soon cause a variety to dwindle away. No strawberry should be propagated from plants which have spotted leaves.

STORING APPLES.—In England, apples are stored on shelves in fruit rooms above ground. The *Garden* says that experiments have been made there with the American plan of keeping them in barrels, and the American plan is found to be the best.

AN ÆSTHETE IN PEAR FLAVOR.—One "Wiltshire Rector" complains in an English periodical that the Seckel Pear has a "vulgar sweet taste." It is a pity there should be so many vulgar people.

VITAL POWER IN FRUIT TREES.—How much vital power has to do with ability to resist unfavorable circumstances is well shown by Mr.

Barry in his presidential address to the Western New York Horticultural Society. While younger trees resisted the severe winter of 1880-81, whole orchards of older trees were totally destroyed in Western New York.

RABY CASTLE RED CURRANT.—Have any of our readers had the chance to judge of the real merits of this variety?

DRYING APPLES WHOLE.—Recently we had a note as regards the process by which apples were dried whole in England. We have had in response an answer to the inquiry, and believe it is not generally known. We find the following in regard to it in a recent issue of the *London Gardener's Chronicle*, from a correspondent:

"I noticed a question asked in your columns a few weeks since which I have not seen answered, in reference to drying the Norfolk Beefing Apples. In the first place I would remark that patience is necessary to do them well. Several sorts of apples will dry—the Yorkshire Greening, London Pippin, Blenheim Orange, &c.—but none so well as the Norfolk Beefing. The apples should be large and firm. In the first place they should be pricked well over the skin with a large needle; then roasted in an oven, not too hot, but just sufficiently to cook them without bursting—a brick oven is always best for doing them; if nicely roasted the skin will be bright and clear. Let the apples get quite cold, and flatten them a little with the finger and thumb; then return them to the oven, taking care that it is not hot for a couple of hours. Then repeat the flattening and drying as often as is necessary—three or four times is generally sufficient. They usually take three or four days to dry, as they must be cold each time. The great secret in doing them well is nicely roasting the apples in the first place. In Lady Augusta Millbank's lifetime, they were used here for the dessert in large quantities, and much better done than those that were bought in."

INSECT LAWS.—They have insect laws in California. Commissioners, three, are appointed, who make the by-laws and enforce them. Here is one by the Commissioners of Nevada County:

"It shall be required of every fruit grower, owner of an orchard or orchards, or lands containing fruit trees, or persons in possession of lands on which there are fruit trees, which are infested with codling moth, larvæ or pupæ (chrysalis), to destroy such codling moth, its larvæ or pupæ, before the first day of March each year, by scraping off all rough bark on said trees and cleaning all crevices in bark and crotches. The scrapings must be gathered carefully and destroyed by burning or otherwise. A spread made of old grain sacks or other cloth material should be spread on the ground around the body of the tree before scraping. After scraping, the tree must be washed with an

alkaline wash made from a soft soap containing at least nine per cent. of potash, forty-five per cent. of oil or fat, and about forty-six of water. This soap, when made, mixed with twenty-five per cent. of its weight with flower of sulphur. One pound of this mixture to each gallon of water used for washing trees. Instead of this wash, the whale oil soap and sulphur known as codling moth wash may be used."

FRUIT AND VEGETABLES ON THE SACRAMENTO.—

It is worth putting on record that the first vegetables planted at Yuba Dam, or as it is now called, Marysville, in California, Briggs, the famous orchardist, set out, in 1841, a ton of potatoes, which cost him \$800. The frost interfered, but he had a fair crop. The next year he bought a lot of watermelon seed for \$20, and planted five acres, for the product of which he received \$5,000 clear profit; twenty-six acres the next year, made a profit of \$20,000. He brought fifty peach trees from New York and planted them in 1852, bearing the first fruit in that part of the world in 1853.

SOIL FOR PEAS.—Rich soil is not essential to a good pea crop, though little can be made of them in what would be called poor ground. Nor does the pea like wet ground. But it likes ground that is moderately rich, and in situations where the sun does not pour.

GROWING RADISHES.—It requires rich ground to grow vegetables well, but the radish beyond all must have it. It is hot work to eat a radish that has not been grown in very rich ground.

HOW TO RIPEN PERSIMMONS.—A correspondent of the *Pacific Rural Press* says: "I learned from a Chinaman, who has had much experience in fruit growing, that the best method of treating the persimmon is to take it from the tree when fully matured and put it away in some place (a box or otherwise) where it will be excluded from the air and light until it has become perfectly soft and pulpy, and then steep it for a few hours in clear water."

PEACH YELLOWS.—Dr. Sturtevant also is a believer that the seat of the Peach Yellows is somewhere about the root. He would apply Muriate of Potash to the soil about peach trees as a preventative of the yellows.

YEAST AS AN INSECTICIDE.—Yeast sometimes destroys insects, and sometimes not. In the latter case it does not contain *Isaria*, which is the particular fungus denoxious to insects.

THE LEECHEE FRUIT.—This Chinese tree, now becoming popular for planting in California, is

the *Nephelium Litchi* of botanists. It is said that an admirable wine may be made by using for fermentation the dried fruit. Care must be taken not to crush the seeds, which are acrid.

SCRAPS AND QUERIES.

WINTER NELIS PEAR.—"A. H.," Meadville, Pa., writes: "When I wrote to you about the keeping of the Winter Nelis Pear, having kept it some three months longer than usual under conditions stated, I hoped to have had a private opportunity to send you some samples of my best specimens, but the opportunity failed to come, and the best fruit was among the earliest to mature. I, however, venture to send you by mail a fair medium sized specimen to show that part of the crop has kept even longer than I anticipated. A day or two in a warm room will bring it into eating condition, when I hope you will find it as represented in my former note. With kind regards and best wishes for a satisfactory season with you."

[This pear proved to be delicious, excelling even the superior fruit of Rochester. It is very useful to know in what localities the varieties of fruit do especially well.—Ed. G. M.]

BENTLEY'S SWEET APPLE.—Mr. Kalb says: "My article in the *GARDENER'S MONTHLY* on the Bentley's sweet apple has a slight typographical error. 'My nurseryman's catalogue' should read *any* nurseryman's catalogue. The error is a very small one, but it makes the sense very different from what I intended."

HIGHLAND BEAUTY APPLE.—Mr. E. P. Roe writes: "I send you herewith per express, prepaid, a few of my new seedling apples, 'Highland Beauty,' which is a seedling from the Lady apple. Last year was not the bearing year and we had only a few; but with no special care in keeping they have kept in excellent order and in a cellar where other varieties have rotted. It is my wish to test this new variety fully before sending it out to the public."

[This came to hand on the 18th of March, which shows it to be a good keeper. As before noted in relation to this and other apples, the value of a good fruit of this class depends on so many things of which a specimen on an editor's table cannot tell. There are already over two thousand named apples, and he who undertakes to add to their number assumes a great responsibility. All we can say is that so far as we can

judge, this apple has some very good qualities, which seem to make it worthy of attention.—Ed. G. M.]

CALLOWAY CLING PEACH.—Mr. T. V. Munson, Denison, Texas, writes: "On page 83, March number *GARDENER'S MONTHLY*, you insert my letter of November 10th under 'A Fine Peach.' I should have written further facts, obtained since, in regard to the variety. After careful inquiry, by letter and otherwise, I have been enabled to trace its first introduction several years ago by G. W. Stoner, of Shreveport, La., but its origin was not known to him. It is known as Calloway Cling, and possibly some of your readers in the regions where the variety is best known can give its origin. It is remarkable for its lateness, size and quality."

SULPHUR FOR CURRANT WORMS.—"W.," Christiana, Pa., writes: "An old gardener informed me, a few days since, that flower of sulphur sprinkled on the currant leaves when they were damp would kill the currant worm. Is this correct? Will it answer as well as hellebore? Thee can answer through G. M."

[We should incline to the belief that one might roll a caterpillar in sulphur to its positive comfort rather than injury; but there can be no objection to any one's trying it on one.—Ed. G. M.]

FRUITS AND TREES IN KANSAS.—"J. B.," Salina, Kansas, says: "I have a cottonwood growth at my place two years old, of sixteen inches in circumference and over twenty-two feet high. In 1880, I sent a sunflower stalk to the national fair at Bismarck, that grew alongside of some road, twenty-two and one-half feet long, six inches in circumference, and was enough for one man to carry. Time of growing, little over three months. My neighbor has a German prune tree, very young yet, that had over five hundred prunes on. Last season peaches sold from \$1 to \$3 a bushel, and this all in a droughty year."

[This is wonderfully good, especially for a place so far towards the desert as Salina.—Ed. G. M.]

SUCCESS WITH DWARF APPLES.—A New Brunswick, N. J. correspondent says: "I have also succeeded in growing dwarf apples—for three years now—upon a stock not subject to the borer and from which I expect very good permanent results. We consider it scarcely worth while to try to grow apples on this dry red shale formation on their own roots; for here, more

fatally than on any other soil, for some reason, the worms, in four or five years ruin all."

PEACH CULTURE.—"M. S.," Bryn Mawr, Pa., writes: "In my little garden I have about a couple dozen of peach trees, and should like to have them succeed to perfection. I would like them to be model trees, free from all diseases and insect troubles, and bear certainly and profusely. Trees, in fact, which the owner of so small an orchard may be proud to show to his admiring friends. Now, what book shall I buy?"

[If you would be perfect in peach culture wash the stems, before the leaves push, with common lime-wash, as far up as you can reach, without covering the last season's twigs. If the white is disagreeable, put in coal dust, yellow clay, or anything to shade it you prefer. A little sulphur does no harm to the wash. Now for the root culture—let the laundry folks, at every wash-day, pour the boiling hot soapsuds about the roots. This will destroy the insidious little fungus which produces the "yellows" and other diseases, and finish the larvæ of insects which are very injurious to the roots of the trees. Do this and you will not need any books to teach you how to grow a few dozen trees to the greatest perfection.

If, however, you should be tempted from your few dozen to become a market man on an extensive scale, there are many other things to be considered. Then it is wise to read the experiences of those who have been on the road before you. Such works as "Rutter on Peach Culture" you will have to read, and you will derive much profit therefrom.—Ed. G. M.]

HYBRIDIZING GRAPES.—"M. S. W.," Fonthill, Ont., says: "We are anxious to know the art of hybridizing grapes. Our Mr. Stone, of Rochester, advised writing to you to see if there was not some publication on that subject. If not, we suggest an article at length in the *GARDENER'S MONTHLY*, which would be very interesting and useful to many readers."

[The process is easy by art, though it is not easy when left to nature. The corolla of the grape is united over the stigma, and generally does not fall off till it has received its own pollen; but with good eyes, or good glasses to aid the eyes, the corolla is opened with a fine scissors, and the pollen applied from the male parent to the stigma before it has had a chance to use its own. If this is carefully done, crossing is almost sure to be effectual.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

UNITED STATES TIMBER LAWS.

BY F. W. WOODWARD, EAU CLAIRE, WIS.

The quotation of the law in your April number is incorrect. As the amended law now stands, it requires but ten acres to be planted on each quarter section of one hundred and sixty acres, and in like proportion on eighty and forty acres.

Five acres on each quarter section to be broken up the first year, cropped the second, and the additional five acres broken. The third year five acres to be planted with trees 4x4 or 2,700 to the acre. The fourth year the remaining five acres which were cropped the third year, to be planted in the same manner. Trees to be cultivated for eight years when there must be 675 growing trees to the acre, in order to obtain a patent for the land.

AILANTHUS IN SOUTH JERSEY.

The reference of Mr. Douglas, in the April number of the MONTHLY, to the Ailanthus as a suitable tree for our Jersey shore, suggests some further observations upon this tree and its adaptation to the more sandy tracts in the southern part of our State.

First. In regard to the durability of Ailanthus timber, there is much uncertainty. I have been collecting observations upon its use for several years past, and while my own experience and that of friends who have used it, is not in its favor, reliable persons have told me that it was equally enduring as chestnut. Its value as firewood is also disputed. For cabinet work its grain and color favor it, and it is liked by those who have used it.

Second. The great destruction of our pine timber by fires, makes the cultivation or growth of our pitch pine (*P. rigida*) too hazardous for profit, unless in small, isolated tracts. The necessity of a substitute—of a tree not so exposed to fires as pine—suggested the Ailanthus. I have made several small attempts at sowing seed, but every year they failed to germinate. A very small experiment in planting a few trees was tried in Burlington County two years, but the locality is too sandy and barren to produce trees of any kind.

As regards observations, the Ailanthus has been found growing thriftily at many localities in our southern counties and upon very sandy soils. From what I have seen I feel confident that this tree can be grown profitably upon our poorer,

pine-barren lands, and that its more rapid growth and its greater immunity from fires adapt it not only to the very sandy lands of New Jersey, but to some of those of Delaware and Maryland also. The wood is worth quite as much per acre, for fuel, as very much of that now cut from our pine lands. And as a forest covering for lands which are too poor for profitable farming, this tree seems worthy of planting.

[We are very glad to have this suggestive paper, especially because a recent note on the Ailanthus seems to have been misunderstood in some quarters. We give all the information we can get on all subjects, and it makes no difference to us whether that information be in favor of or against any pet notion of our own or of anyone else. It was in this spirit that we gave the paragraph that some one in New York had found Ailanthus posts good for nothing. It does not follow that other people may have as bad experience, neither is timber culture to be viewed wholly from the standpoint of fence posts alone. As for the Ailanthus, we may say that our impression is that it will prove to be one of the most valuable forest trees we have. But an editor must not be satisfied with impressions. He must have the facts, just as they are, and just what they are.—Ed. G. M.]

EDITORIAL NOTES.

FORESTRY NONSENSE.—The good cause of forestry would prosper much faster if it could be relieved of the load of humbug and nonsense which it has had to carry—a load packed on its shoulders by sensationalists, who seem to think that anything which will alarm people is good for the cause whether the thing be true or not. So widespread is this nonsense that the GARDENER'S MONTHLY has had to stand almost alone in opposing it. This it does on the principle that nothing but the truth can help any good cause permanently. Here before us is an essay by one whom the people look up to as an "authority" on forestry matters. We read in it that "in the early history of the Eastern and Middle States, a farm was regarded as lacking in an essential feature if there were no spring upon it, and the farmer's wife would as much expect to do without milk pans as to do without a spring-house. But now a spring-house is a rare

sight." And now "brooks, creeks and smaller rivers have dried up."

The property owned by the editor of this magazine, is perhaps the first piece of forest land that was cleared in Pennsylvania. The "spring house" is known to be 150 years old—how much longer is lost to history. There are numberless other "spring-houses" in an area of twenty miles. For the last 150 years the forests have been cleared off, till now there are none worth speaking of within a hundred miles at least. In this county, of one hundred square miles, there is not, all told, one hundred acres of forest. But the springs and spring-houses are there as they always were; and the Wingohocking, which winds through the editor's grounds, is just as full as it was when the Indian took the name of Logan in exchange for the name which the stream bears. We doubt very much whether there is a single spring-house in Pennsylvania which has had to be abandoned through the spring drying up, unless it were from a railroad cut, or some similar work cutting through the underground stream.

GROWTH OF FOREST TREES—It has often been noted in our magazine, that Forestry experience in Europe is of little value for forest culture in our country. The English Oak, for instance, which is so slow a grower in England, that it lasts for a thousand years in some instances, will reach its climax, and get on a downward track in less than a hundred in our country. It is of amazing growth in America. The writer has had twelve posts made of a tree which was planted but twelve years before. How slow the same tree grows in England is palpable from the history of the tree in which King Charles hid himself in the woad of Boscabel, after the battle of Worcester, in 1651. This must have been an old tree, of some size then, to be able to hide from view, by its ivy-covered trunk, the poor, pursuit-pressed King, from the troopers who passed beneath its branches. Yet at the present time it is only twelve feet three inches in girth at four feet from the ground. This would give only about two feet of growth from the centre of the tree, and gives but sixty hundredths of an inch increase per annum in 400 years!

No wonder Europeans look upon forest growing as the work of centuries! There is no doubt but with the light of American experience, a judiciously planted and properly cared-for forest would be in good timber use inside of fifty years.

This thought may be of comfort to those who are so much worried over the future of American timber. We can soon reforest whenever it shall be really profitable to do so.

EUROPEAN FORESTS.—The *Journal* of the Société des Agriculteurs de France publishes some interesting particulars with regard to the forests of Europe and the rapid consumption of the timber which they contained. Sweden and Norway, which still do a large export trade in pine, are now compelled to buy their oak in Poland; and in Russia the forests along the shores of the Baltic, in Finland, and in the Southern provinces, are so rapidly thinning that the forest acreage of the empire is now only one in ten. There are about 34,000,000 acres of forest in Germany (of which 20,000,000 are in Prussia), bringing in an income of \$50,000,000 per annum. The State forests are taken great care of in all parts of Germany, in Prussia alone \$500,000 being spent every year in replanting. The imports of timber exceed the exports by over two million tons. Austria and Hungary have upward of 43,000,000 acres of forest; but in Austria proper the State does not possess more than seven per cent. of the wooded area, and Austria is now obliged to buy most of her timber in Bosnia and Montenegro. Servia and Roumania have some very fine forests; but Italy, though her forest area extends over nearly 14,000,000 acres, does not do much in the way of a timber trade, as the roads leading to the forests are so bad that it is almost impossible to move the timber when cut. Much the same is the case with Spain which has 8,500,000 acres of forest; while Portugal, which has only a million acres, finds a good market for her timber.

SCRAPS AND QUERIES.

THE ROMANCE OF FORESTRY.—A New Jersey correspondent, whose official position gives weight to his words, says: "Allow me to commend heartily your pertinent and opportune criticisms upon the various forestry schemes and papers on forest legislation. A very careful study of our rainfall in New Jersey (see Ann. Rep. of State Geologist for 1881, pp. 60-91), has convinced me that so far as New Jersey is concerned, there is no noticeable diminution in the mean annual or seasonal amount. And the extent of forest in our State is diminishing very slowly; in some sections it is increasing."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

WINTER IN WASHINGTON TERRITORY.

BY MRS. FANNY E. BRIGGS, LA CENTER,
WASHINGTON TERRITORY.

Are there any readers of the GARDENER'S MONTHLY who would like to know how life goes on up here under the fir trees? There is plenty to do as any one will believe who will make an estimate of the labor of disposing of a growth of timber standing thickly on the ground, and much of it two hundred feet and even more in height, with a heavy growth of underbrush. Few trees are chopped down. They are "fired" at the base by boring holes and inserting fire, and when they fall, are separated into lengths for logging in the same way.

A little patch is cleared here and there at first where circumstances favor, and grass sown between fallen logs, and in all open places, to furnish pasturage.

There are mills, but not enough to supply all with building material, and many claims are taken where there are no roads, and houses are built without a foot of sawed material in them. A tree of straight grain is selected, and every part of the house is split out, with more or less care, according to the taste and skill of the builder. Ours was more carefully built than most, the sides being covered with shingles exactly like the roof.

But can any one imagine the isolation of winter's life on a homestead in these ends of the earth? In summer the climate is agreeable sometimes rather too dry for vegetation, but never excessively hot. Then we are occupied with the usual cares of life on a farm, and if we have leisure, do not mind a walk of even two or three miles to visit a congenial "neighbor." There is Sabbath-school and occasional preaching at the little school-houses here and there, and people meet together with hearty kindness and genuine sociability. In short our social life is at its best at that season.

But the country is rough and sparsely settled.

The roads are bad at any season, and when the winter rains fall almost constantly, week after week, the mud becomes as Mrs. Stowe phrases it, "of unfathomable and sublime depths." The man who has horses and a wagon is a "bloated aristocrat." Oxen are the usual teams, and wooden sleds the usual vehicles at all seasons. Of course in this state of things there is not much "driving" for pleasure, and we women are practically almost prisoners. Now and then we set rain and mud and distance at defiance, but sometimes I look day after day at the leaden sky, and the dreary wall of dead fir trees, until I no longer wonder at the numbers of petrifications that strew the ground, but only that anything animate or inanimate, escapes the same influence.

What would we not give for some of the privileges that are so much a part of life in the Eastern States? For the well-filled book-shelves we have left behind; for some of the magazines you read and toss aside, the lectures and sermons and concerts you listen to so critically?

But there are here, (as where are there not?) some compensations. First, health comes to almost every one in this pure air, and who cannot be content when strength takes the place of weakness, and health of disease? There is an exhilaration, a fullness of life and energy in the air that I have never known elsewhere.

And although the primeval forest shuts us in to what seems the peculiar and chosen haunt of loneliness and isolation, only eight miles away flows the mighty Columbia, bearing on its broad bosom the ships of all nations. In favoring conditions of air and wind I can hear the hoarse whistles of these ocean steamers, and I love to fancy what scenes they have witnessed, what perils escaped, and what freight they bear, and there is fascination in the thought of this busy and varied life so near at hand and in such contrast with the quiet scenes around me. And then,

"To him who in the love of nature,
Holds communion with her visible forms,"

she is never silent. She speaks from the ever-present firs whether perversely smiling in the sunshine, or wrapped in the somber gloom of

the cloudy and dark day, or bending with majestic grace before the wind; from the rocky hills and deep ravines and swift rushing streams; from the luxuriant ferns and delicate flowers, almost all of them white and frail, as if paled by the shadow of rock and hill. But above all, she speaks from the grand snow-peaks, standing in lonely grandeur, calm and unapproachable, yet ever beckoning upward to a higher, purer realm.

HEREDITY IN WHITE VARIATION.

BY EMILY R. TURNER, PROVIDENCE, FLORIDA.

I enclose you a leaf of a white collard which I have for years been trying to perfect. I was first attracted by a few plants of light green with white veins, by sowing seed from the whitest every year. I last year had a large bed beautifully mottled with white and green, and this year they are almost snow white, only a fringe of green on the edges, but a drove of cattle broke into my garden and before they could be got out, ate up all but four heads. It may be a common thing, but I have never seen them before. They are certainly collards, large, loose leaves, and no sign of a head.

[Mr. P. J. Berckmans has kindly handed this to us for publication. The leaf sent was of the well known class of cabbage popular as collards in the South. The leaf was pure white, but for a half inch round the edge it was beautifully fringed with green.

The point of scientific interest is that this class of variegation can be reproduced from seeds. There is no reason why not, for our knowledge of these possibilities has widened wonderfully of late years. It is now known that golden leaved plants, and blood leaved plants have hereditary characters, as also have weeping trees, fastigiate trees, and trees with other peculiarities. But these classes of colored leaves and trees with peculiar habits are not regarded as diseased forms, as those with white variegations are. Indeed the blood leaved Beech is a much more healthy and vigorous grower, than the normal green leaved form. So far as we know this is the first time that it has been positively known that a race of white variegated leaved plants could be perpetuated from seed.

Apart from this, the variety would have a beautiful effect on many classes of ornamental gardening.—Ed. G. M.]

EDITORIAL NOTES.

NERTERA DEPRESSA.—In woods in the Eastern United States we have a very pretty trailing evergreen plant of small size known as *Mitchella repens*, and sometimes commonly called Partridge berry. The little plant is covered with bright red berries, about the size of holly berries, which when the flowers happen to be freely fertilized, are abundantly produced. It has been found of late years that the flowers are di-morphic. In some the stamens are long and the pistil short, in others the facts are reversed; the result is that the flower rarely fertilizes itself, and only the flowers from a distinct plant are capable of fertilizing the flowers of another plant. A white-berried variety has occasionally been found, but it is of little practical value, because when removed to garden culture, and being effectually of only one sex, the berries are



NERTERA DEPRESSA.

not produced. In its wild state it receives the pollen from the colored flowers about it.

It is interesting to note how nature seems to nearly repeat herself in different parts of the world, holding on to the same type, and yet varying just enough to make things different. It is this community of type which makes one guess at a theory of evolution, even though there were no positive facts to support the doctrine. *Mitchella repens* is confined to North America, and there seems to be nothing very closely allied to it, but in South America there is a real *Mitchella*, *M. ovata*, and besides a genus of a very few species, *Nertera*, which is so nearly like it, that species have been referred to both genera by some authors, uncertain to which they really belonged. One of these has

been some time under culture, chiefly through the energy of Haage & Schmidt, of Erfurt,—*Nertera depressa*, a small cut of which we give with this sketch. Instead of red, as in our *Mitchella*, the berries are amber and set so thickly on the plant that often a leaf is scarcely to be seen.

NYPHÆA TUBEROSA.—The *Garden*, of February 25th, gives a good colored plate of this pretty North American water lily, which is comparatively unknown even to ourselves. Most *Nymphæas* have the leaves floating on the surface of the water. This species has some of them pushing themselves up above the surface of the water, as the leaves of the *Nelumbium* do. They do not all do this, however. Some lie on the surface and turn up their edges as the leaves of the Great Victoria Lily of the Amazon do.

VEGETATION OF ARIZONA.—Mr. J. C. Lemmon gives the following very interesting sketch to the California Academy of Sciences:

"Arizona Territory comprises a large cross-section of that broad interior region between the Rockies and the Nevadas that is often misnamed the Great Basin. This region is characterized by areas of desert land, so-called, undulating plains of white or reddish sand, sparsely dotted with shrubs such as creosote bush, mesquite, palo verde, acacia, etc., plants that thrive with little water and that love the sun. Also, this is the home, par excellence, of the cacti, of all forms and sizes from the little pincushion to the large and stately tree cactus.

"Rising out of these plains are bald mountains of many hues and shapes in accordance with their rock composition. Some of these mountains are disposed in long parallel chains, especially those in the north end of the Great Basin, and mostly included in the State of Nevada. Southward in Arizona the mountains are generally so deeply submerged with sand and gravel, the bed of a recent vast inland sea, that only a few of the most elevated peaks remain uncovered. These peaks are thus more or less isolated and separated by wide stretches of arid desert, and this isolation inevitably leads to the production of peculiarities of its products, especially to differentiation and varieties of floral objects. As most of these mountains are not high and are but a few miles in circuit, with no living springs in them, their flora is limited to dry-weather vegetation and such annuals as are nourished by the rains and coolness of a short winter and the

few days of rainy season in mid-summer. It will be many years before botanical exploration on this coast will be conducted so thoroughly as to comprise a complete knowledge of all the peculiar plants that are annually spreading their petals to the sun on those lonely mountains and telling to the untutored aborigines the story of their mysterious origin, and revealing to his dull eyes the beauty of their peculiar forms.

"Other higher mountains are usually found disposed in chains of several miles in length.

"These chains are the more distinct vestiges of great submerged ranges that traverse the whole region parallel with the great Rocky and Nevada ranges. These high chains are often of considerable breadth, and their outlying peaks frequently enclose valleys of great fertility, which are usually well forested on the north slopes as well as on the floors of the valleys, if high enough to be cool and well watered. In fact some most delightful parks have been discovered, almost inaccessible, fenced round with bristling peaks and upheld close to the sky and the stars.

"It is in these alpine valleys and slopes that most of the new things are found, the descriptions of which are fast appearing in botanical journals at the East.

"As stated in a former paragraph, many of the trees of our great Sierra and coast ranges are found also on the highest mountains of Arizona. In several localities lumber factories have been in operation for years. An especially rich valley of pine timber is located in the Chiricahua Mountains, utilized by a large factory, which for years has supplied the market of Tombstone.

"Large plateaus of good timber are crossed by the line of the Atlantic & Pacific R. R., near the middle of Arizona, on the parallel of 35°.

"These forests are composed principally of *Pinus ponderosa*, Douglas Spruce and White Fir, with several species of Oak. Among these trees, or apart from them, on the highest peaks are found the rare and little known trees to be described."

SCRAPS AND QUERIES.

PAPAW.—"W. G. B." says: "One of your correspondents, on page 120, April number, seems disposed to set at defiance all authority as to the orthography of papaw. We are accustomed to follow Webster. Those who prefer botanical au-

thority may consult Drs. Gray, Lindley, Darlington and others, all of whom agree with Webster. We do occasionally hear a person pronounce the word pawpaw, as we sometimes hear the second month called Febuary, but in both cases our inference is that he who uses such pronunciation is ignorant of the true spelling."

[It should be remembered that the correspondent referred to is quite as much an "authority" as any now mentioned. Webster is not always right.—Ed. G. M.]

YELLOW FRUITED CHOKE CHERRY.—"F. W. W., Eau Claire, Wis., writes: "I have a tree of the Choke Cherry with fruit of a bright yellow color; otherwise the tree is the same as the common variety. I have never seen this before and would like to inquire if it is new. The tree has fruited with me for the past three years, and when in fruit is very showy."

[From analogy with other allied fruits, a yellow-berried Choke Cherry might have been expected; but so far as we know one has not been noted before.—Ed. G. M.]

ROSAL MONSTROSITY.—"Mrs. M. P., Lynn, Mass., sends a very interesting specimen and says: "I enclose a bud from a Douglas rose growing in my greenhouse. Can you explain why it should grow in such a singular manner? Please answer in the MONTHLY. The April number is full of good things."

[All the parts of a flower are merely leaves changed to the various floral organs. The rose proves this better than many others, for rose-leaves often turn partially to petals, or the petals go back to leaves. In the present case the calyx segments have become perfect leaves, not like the ordinary rose leaves, but lobed like the striped bark maple leaf. We never saw a case just like this.—Ed. G. M.]

IS KALMIA POISONOUS?—A chemical friend at Washington promises to analyze *Kalmia* leaves, and report what he finds. He will certainly not find prussic acid as some conjecture, merely because by some chance the *Kalmia* was called a laurel, when it has no relation whatever with that laurel which has this poison in it. Some *Ericaceæ*, *Arbutus* for instance, have given slight indications of possessing some narcotic properties, but in so small a degree as to be of little moment.

HEALTH AND AILANTHUS.—"T. F. B., Allegheny, Pa., writes: "On reading the follow-

ing item I deemed it so very unjust that I clipped it for your judgment:

"In other cities the attention of the boards of health have been called to the fact that where the ailanthus trees grew, in a great many instances persons have been poisoned, and they have been declared unhealthy and their removal ordered from the public streets and parks. The trees are cultivated in the cities because they give much shade and will thrive when other trees will die. Pittsburg and Allegheny have many of these trees. In the Allegheny parks a number of the walks are bordered with the ailanthus trees, and in the East End and other parts of this city, they are found in abundance."

"The ailanthus is in frequent demand, on account of its quick growth, and although common here yet I never heard so serious a charge made against it. However, on referring to the U. S. Dispensatory, thirteenth edition, *Ailanthus glandulosa* is found described under the 'Non official Medicines,' and it is stated that 'Prof. Heltet, of the marine medical school at Toulon, France, experimented on dogs with the powdered bark—powdered leaves and various preparations of the bark. As a general result they were found to possess cathartic and anthelmintic properties. The oil of the bark is so powerful that persons exposed to the vapors, in preparing the extract, are liable to be seized with vertigo, cold sweats and vomiting. A fact worthy of remark is that neither the bark nor its preparation, taken internally, produce vomiting in man, while this effect is determined by the inhalation of its vapors when boiled.'

"From the foregoing there seems to be ground for the serious charge. Is it not probable that the odorous principle (volatile oil) of the flowers is analogous to the oil of the bark? If so, it would explain what to me at first seemed an unfounded assertion. The pistillate variety of *A. glandulosum* being exempt from this nauseous odor, why not plant it, as recommended in a former number of the MONTHLY."

[It will be a bad day for Pittsburg and Allegheny should a crusade arise against the ailanthus. Thousands of trees have "pisen in 'em," as some of the ignoramuses say of the ailanthus, and a great deal more than ever the ailanthus has. There is infinitely more poison in an oleander, yet we have seen big bushes in scores of Pittsburg yards without any one complaining of ever being hurt.

In early times the ailanthus was believed to be a *Rhus*, and to this day it is known as the

"Varnish tree in Japan" in many parts of France, which is very nearly or quite the same as our poison ash, *Rhus venenata*. It is more than likely that what poisonous reputation many yet adhere to the plant, is the remains of the old confusion of names.

A tenant house on the property of the writer has been surrounded by aianthus for at least a quarter of a century, with not a breath of suspicion as to any poisonous effusion from them.

You may depend on it that any serious noxious quality from them is all nonsense.—Ed. G. M.]

ERICA MEDITERRANEA.—This is the plant referred to by "H. S. C.," Collinsville, Conn., in the following note. It would scarcely stand a New England winter: "Can you inform me through magazine the name of the pink-flowering Heath common on the hills about Nice, and whether it would live here in New England with cover in the winter?"

ATAMASCO LILY.—This is probably the plant

referred to by "H. S. C." in the following note—*Zephyranthus Atamasco*, or possibly the newer *Z. Treatæ*: "Name of white lily common in Florida from Gulf coast to Jacksonville. Flowers about Easter. About one foot high, upright on stem. Is it a *Zephyranthus*?"

NOTE ON COLORS.—"Mrs. M. P., Jr.," Lynn, Mass., remarks: "I have been much interested in the discussion of a 'blue bedder' in the later numbers of the MONTHLY. I can indorse all that W. Robertson says of the *Ageratum* 'John Douglass,' in the April number, having tried it in different situations during the past summer. Its dwarf, compact growth and continuous bloom rank it as a first class bedder. But the question I want to ask is: Is it blue? Put it beside the heliotrope and it seems the same color to me only a lighter shade. Contrast it with the browallia, it looks a decided purple, while browallia is a 'true blue.' Am I right?"

[Certainly. We have seen American flags in which the blue was the color of the *Eupatorium*, but they had run through a long campaign in more senses than one.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

LETTER OF A CALIFORNIAN NURSERY-MAN.

The enclosed has been handed to the GARDEN-ER'S MONTHLY by a friend in Southern California, from one of the best nurserymen in the State, residing in Nevada county. The fact that he has sense enough "to let well enough alone," is evidence of his merits. The rolling stones may, by chance, fall into a mass of moss; but they seldom gather it.

"Some five months ago I had the pleasure of receiving from you a very nice and complimentary letter, to which I ought to have replied at once; but as I intended to take a trip down the southern country this fall, I put off answering you from week to week, till—yes, till the yellow leaves of autumn were dropping off thick and

fast from the trees, and the winter was upon us, with no trip for me this fall down the fair land of Santa Barbara and Los Angeles. The only trip I took this year was a month ago, down to San Francisco, Santa Clara and Alameda; and, after an absence of ten days, I had to come up to pick my grapes and gather my fruit, and draw tight the strings of my little purse; for that's the reason why I do not go so much around as I'd like to. I have to depend solely upon my own resources, with no capital whatever to carry on my nursery business, or indulge in the agreeable pastime of traveling throughout our beautiful State.

"In your letter you say: 'Would you not find a more congenial location, a larger market and scope for your talents in this southern country than where you are?' To that question of yours, which I think is very pertinent, I will frankly

reply—yes, I would do ‘heap’ better; there, under your genial climate, I would certainly find a better market for all the fine varieties I either introduced or imported into this country from Europe, than in this rough, mining country of Nevada. I would also very likely find there a better scope for my—I would not say talents, but ideas and taste. This is all very true, but—but it costs a great deal of money to move an establishment like mine, no matter on how small or large a scale it is carried on, and that money I didn’t and do not have; for I will tell you, since you have been so kind to write me such a friendly letter, that I had to start my nursery, take care of it, enlarge it, with no capital at all but my own labor and exertions. And if to-day I am the owner of the nice and valuable property upon which is my nursery, I have the satisfaction to say that I do owe it entirely to myself, and that I owe nobody a cent.

“Should I be fortunate enough this season to have quite a demand for trees and make a little money, then I would, probably next fall, have the pleasure of taking a trip down your way, and I would indeed be very happy to make your acquaintance, and live for a few days among the good people of old Santa Barbara.”

CANIS FEROX CUM KETTLEBEES.

BY “A COLLECTOR.”

I see you have got a kettle to the tail of my “Fremontia” dog that howled in the March number (page 87).

In many cases the kettle is the more important appendage, but it seems to me that in this instance the dog is the most valuable, for the kettle wont hold water, whilst the dog as you see is still able to howl. I may have howled on a false note, for it seems to have grated on the editorial ears.

Though we were both harping on the same string, we neither of us seemed aware of it. “I” also wish to say a word for American Horticulturists, those of them who are so in the broadest sense of the word—not the *Calendulæ*-culturists but horticulturists with a big H—and “American” enough to try American as well as foreign plants.

I do not “suppose” there is a “dislike to American plants.” My orders and letters prove the contrary, but the use of them is not as common as it ought to be. And I still maintain that to be American is a smirch upon a plant’s fair name. But that “nine-tenths of all the plants

in cultivation in the Atlantic States are of American origin,” makes such a hole in your kettle, that the sun shines through it in the most obvious way—in fact “nine-tenths” of it is gone. I fear you have made a miscalculation, change the ninth digit for the first one and you will be nearer correct; don’t you think so—now?

I have no quarrel with Japan or other foreign plants. I only wish florists would introduce more of them. As to California trees not doing well at the East, who has tried them, and what sorts and where and for how long? Give us more light on this point, O most sapient editor!

What my object in howling as I did, was “to speak a word for American horticulturists,” that will set them thinking that our own land has many handsome plants well worthy of attention; to create a love for plants to the manor born, as well as foreign, not to the exclusion of either. I have nothing but good to say of the Sauls, Parsons, and Suchs of America, and a few others of that ilk—who are or try to be in the lead in the introduction of good plants—and to whom we owe much; but to the *Calendulæ*-culturists who get their seeds “by the assortment” from Germany, at him I howl my loudest, and I’ll bite him too whenever and wherever I get the chance—“Cave Canem” (beware the dog). Despire not the common because it is common; praise not the new because it is new; “hold fast to that which is good,” but try—try—try—is my motto. Wishing you every success horticulturally, floriculturally, but not *calendulæ*-culturally.

[We look on a neighbor’s garden from our window, as we read this, and see *Arborevitæ*, Silver Maple, Am. Beech, Hemlock, White Pine, Mahonia, Poplar, Birch, Am. Hornbeam, *Cornus Florida*—all American. The only foreigners we see from this limited window glance are Norway Spruce and Tree Box. There is a vision of his last autumn’s perennial border. Well, we are not yet prepared to retract the “nine tenths.”—Ed. G. M.]

EDITORIAL NOTES.

PLANT PATENTS AGAIN.—Those who try honestly to find out how the discoverers of new trees, flowers or fruits may reap the benefit of some just legal protection such as discoverers in the arts receive through the patent office, must expect to be indecently abused, should their careful conclusions not happen to agree with those

of some others. Our readers may remember the billingsgate effusions sent to the editor, some of which at the call of "justice to the cause," we felt compelled to inflict on the reader. Dr. Warder and Mr. Parker Earle are now feeling the arm of vengeance. It appears that the Mississippi Valley Horticultural Society appointed a committee to examine this subject. They evidently found it to be surrounded by difficulties, and instead of reporting against it at once, took time to consider these difficulties. One "of our number," to wit: Mr. Jacob Moore, Samuel Miller, S. Rommel, J. H. Ricketts, Wm. Culbert, wrote to Dr. Warder to know the reason, and received the following reply:

"Our committee on plant protection had consultations, and reported that as yet we felt unprepared to make any recommendations for the action of the Society. I think the chairman felt we could do nothing."

This civil reply was, however, enough to raise the angry passions of "our number," and with their names and addresses in full they have issued a bill of excommunication to Mr. Parker Earle, from which we take the following sweet morsel:

"We had hopes that the Society of which you are President, founded as it was to promote advancement in horticulture, would on that account advocate our cause; but thus far, we are sorry to say, these hopes have not been realized."

"History shows that truth of vital importance to mankind, has often met with the strongest opposition from those who should have been the first to receive it. The well-known hostility of Dr. Warder, if not of yourself to the protective measure, which is destined to advance American Horticulture beyond, and above that of all the other nations of the earth, is a recent exemplification of such opposition to progress."

The great comfort these gentlemen must derive from all this is, that as they seem well versed in history, and familiar with its truths, they were not very much surprised when they found history merely repeating itself. We are willing to believe that at least one of those whose names are attached to this document did so without weighing its scandalously abusive character.

FAVORS.—A correspondent kindly suggests that he would be glad to communicate some interesting facts to our magazine, only that he fears he should thereby annoy some agricultural journals, who think he should "give all his work to them." Always glad of favors, we may say it never annoys us to have our friends lend these a

helping hand. Agriculture is the parent of Horticulture, and a high class horticultural magazine would find poor encouragement did not the agricultural go in advance and pave the way for it.

DECAISNE.—Mr. Harding writes: "The *Cincinnati Weekly Commercial*, March 29th, says: 'M. Decaisne's career, says a Paris letter, is encouraging. He entered the Garden of Plants in 1824, as journeyman gardener. After hard manual labor, digging, hoeing, raking for eight years, he was made 'head of the sowing bed.' Adrien de Jussieu, struck by his intelligence in the post, made him his assistant, and he quickly became known as one of the best descriptive botanists of Europe. He tried to introduce the Igname to French tables, a sort of potato in great favor in Northern China, but failed, because the plant is so deep-rooted it is dug up with difficulty. He failed likewise in his attempt to introduce Pamie into France. In 1845, the Academy of Sciences elected the poor journeyman to a seat in its hall; in 1850, he was elected a Professor in the Garden of Plants; in 1864, he was elected President of the Academy of Sciences; in 1880, he was elected a member of the Royal Society of London.'

I presume the 'Igname' mentioned, is the long-tailed tuber *Dioscorea sinensis*, or the famous Chinese Yam, whose elongated roots frequently exceed the ordinary length of John Chinaman's queue; and in this country, seems about as useful."

THE HISTORY OF THE CAMELLIA.—The *Camellia japonica* or Japan Rose, the species from which nearly all of our more valued garden varieties are descended, is, as we have already seen, said to have been introduced in 1739; but it is not mentioned in the sixth edition of Miller's "Gardeners' Dictionary," published in 1771. Notwithstanding this I find it thus described in "A History of Plants," by John Hill, M. D., published in 1751:—"Camellia.—The calyx is imbricated, and composed of several leaves, the interior of which are the larger. It is an oriental, described by Kämpfer in his 'Japan,' 850."

In the "Garden Vade Mecum," by John Abercrombie, published in 1789, "*Camellia japonica*, or Japan Rose," is included in his list of both greenhouse and hothouse plants. In the "Practical Gardener," published in 1817, and in the 21st edition of "Every Man his Own Gardener," by the same author (1818), one species (*C. japonica*) and seven varieties only are enumerated..

Loudon in the "Encyclopædia of Gardening," (1822) enumerates twenty-five varieties. In the "Greenhouse Companion" (1824) are colored plates of two varieties, Waratah and Lady Hume's Blush, the former of which is now superseded, but the latter is still much sought after. It is there remarked, "New varieties are continually originating by the nurserymen and other growers from seeds. A number of hybrids are in an advanced state but have not yet flowered."

The Camellia is frequently adverted to and figured in the botanical and horticultural publications of this time, and in the "Transactions of the Horticultural Society, in a paper read before the meeting, December 5, 1809, (vol. i., p. 175,) we find the following:—"In October, 1795, a Camellia japonica was planted here (the South Hams of Devonshire) among other shrubs in the open ground; it has stood every winter since, without the smallest shelter, thrives well and has never had a branch or leaf injured by the weather. It is now about four feet high, the size of a gooseberry bush, but has not flowered." Similar experiments, which have been repeated frequently and in various soils and situations, seem to prove that the plant is nearly hardy in the climate of England, and may be safely planted out-of-doors among other evergreens in warm sheltered situations. But in thus treating it one loses the beauty of the flowers, as, owing to their being produced in March and April, they are nearly always spoiled by the spring frosts. We remember planting out two varieties, against a west wall in 1836, and these passed through the winter of 1837-8 uninjured, although there were 30° of frost, and the Bays, Arbutus, and Laurels standing in the open quarters only a few yards distant were killed to the ground. Mr. Joseph Harrison ("Trans. Hort. Soc.," vol. vii., p. 168) found the double white, the double red, and the double striped grow satisfactorily out-of-doors at Wortley Hall, Yorkshire, "planted in a brown loam on a rocky substratum." He covered the soil to the extent of three feet from the stem of each plant with ten inches of decayed leaves on the approach of winter, removing the leaves in spring. In 1829, a paper on the Camellia, by William Beattie Booth, was printed in the "Transactions of the Horticultural Society" (vol. vii., p. 519). In this paper six species and twenty three varieties are described, four of the latter being figured, and it is there stated: "Of these very ornamental

plants the Society has formed an extensive collection, such as I may safely say is not surpassed at the present time by any other in the kingdom." It appears that the double white and double striped were introduced in 1792, Lady Hume's Blush in 1806, Fimbriata in 1816, Imbricata and several other varieties in 1824.

Many of the varieties originally introduced are now but little cultivated. Hardy plants of them may be met with occasionally in the gardens of the nobility and old English families, but some of the modern varieties raised from them are more beautiful, and consequently more generally cultivated within the last forty years. Many fine varieties have been raised in England, especially by Mr. Chandler, of Vauxhall; Mr. Press, of Hornsey; and Mr. Fielder, of Enfield; and France, Belgium, Italy, and latterly America, have contributed largely to the improvement of the flowers by selecting and preserving variations by sports and by seed. In Loudon's "Encyclopædia of Plants" (1820), eighteen garden varieties are enumerated, and in Paxton's "Botanical Dictionary" (edition 1849), as we have already mentioned, no fewer than 200 varieties are given. At this date there were at least three establishments near London where the Camellia was extensively cultivated, namely, those of Mr. John Smith, Dalston; Messrs. Chandler, Vauxhall; and Messrs. Loddiges, of Hackney. It was one of our greatest treats of that day to see the Camellias at Hackney when in flower in the early spring. They were planted out in a large house, and many of the plants were thirty feet high, in splendid health and laden with blossoms. It was a perfect forest of Camellias, tenanted with blackbirds, thrushes, and other birds, which built their nests in the trees, passing in and out at pleasure through the open doors and windows. Probably there never was any floral display equal to this in England before, and it may be many years before we see the like again. Many of Messrs. Loddiges' large plants were, we believe, sold to the Crystal Palace Company and removed to their palace at Sydenham.

The Camellias of Messrs. Lucombe Pince & Co., of Exeter, have obtained a world-wide celebrity, and are worth going many miles to see. In nearly all the principal gardens and nurseries, few or many may be met with, but we believe that as far as regards quantity and variety our collection stands unrivalled at the present time. —William Paul in *Gardener's Chronicle*.

SATISFIED WITH THE FLOWERS.—It had been determined to start a Horticultural Society for the town and county of Northampton, and the working committee applied to the Earl of Winchelsea requesting his patronage and pecuniary support. In reply, the noble Lord sent the following letter:—"Carlton Club, March 14, 1882. Sir:—I think that the city of Northampton, having been fortunate enough to secure the flowers of Mr. Labouchere's eloquence and the fruits of Mr. Bradlaugh's philosophy, stands in no need of any other horticultural exhibition."

SUEL FOSTER.—Few persons have done more for Western agriculture and Western fruit growing than Suel Foster. He was one of the founders of the Iowa Agricultural College. He found friends, after an advocacy of many years, to get a bill introduced into the Legislature to create the College. Defeated then, it was carried in 1858.

The Land Grant by the United States, to support Agricultural Colleges, a subsequent measure, found in him also an earnest and effective advocate.

JESSE STORRS.—The Ohio nursery trade loses one of its representative members in the founder of the Storrs & Harrison Company of Painesville. His death occurred on the 21st of March. He had reached the ripe age of seventy-eight. He was born at Concord, New Hampshire, and removed to Painesville in 1854. He commenced in a small way on a few acres, and lived to see it occupy 400, and leaves one of the best reputations in the United States. He was a model man in every way, and had the love of his intimates, and the respect of all who knew him.

JOSEPH DECAISNE.—This eminent pomologist and botanist died in Paris, on the 8th of February, in the 75th year of his age. His colored drawings and descriptions of fruits will long remain standard authorities. His great botanical knowledge gave him great advantages, and perhaps to Decaisne more than to any other man, do we owe the eminence of modern pomology as a branch of science.

DR. W. H. LEGGETT.—The death of Dr. Leggett is announced as we go to press, which will be received with regret by the many botanists who have long profited by his labors as Editor of the Bulletin of the Torrey Botanical Club, and in other ways. Dr. Gerard has been associated with him in the work for some time, so that it is

gratifying to know this excellent work will appear as heretofore.

CHARLES ROBERT DARWIN, died on the 20th inst., at his home, Down House, near Beckenham, England. The news comes at the moment of going to press, leaving us only time to make mere reference to the fact in the present number.

THE ROSE.—By H. B. Ellwanger, New York; Dodd, Mead & Co. This is not as large a work as others which have appeared on the rose before. It will not supplant, but it will very well supplement them. There is always something new in rose culture, and with this new book the rose lover and rose grower have the latest news from rose land. The practical directions on rose growing are very full and plainly told. To us the special novelty of the work is the complete history of the most popular roses. The name of the originator and the year of the rose's birth is given. Such a history adds very much to the interest of rose growing.

CHEMISTRY OF THE FARM.—By R. Warington, New York; Orange Judd Company. Mr. Warington has been connected with the celebrated establishment of Lawes and Gilbert at Rothamsted, where agricultural chemistry has been made to produce wonderful results. Those who are purely agricultural chemists have not always succeeded as farmers. On the other hand, we have never known a farmer or gardener, no matter how great may have been his practical success, who was not benefited by a fair knowledge of agricultural chemistry. One great merit in this work is, that it is neither a large work nor an abstruse work, and to those who are limited in time or means, and who will yet be benefited by a sketch of what agricultural chemistry teaches, we are sure this little book will be very welcome.

SWEET POTATO CULTURE.—By James Fitz, New York; Orange Judd Company. A small pamphlet of fifty-eight pages, which seems to cover the whole subject intelligently and completely.

A NEW WORK ON DESTRUCTIVE INSECTS.—Messrs. J. B. Lippincott & Co., of Philadelphia, have arranged for the publication of a complete illustrated work on the insects injurious to horticulture and agriculture. It is to be prepared by Mr. Wm. Saunders, of London, Ontario. There has been an immense amount of useful information brought out about insects of late years, but it is scattered through such a vast

number of publications that no one knows where to look for it when needed. It is fortunate that the lot of preparing such a work has fallen on Mr. Saunders. While standing among the leaders in scientific entomology, he happens to be at the same time an enthusiastic horticulturist, and so knows just what we need in this line. In addition to this he is one of the leading chemists of America, and must have a practical acquaintance with insect destroying substances. It is rare that so many qualifications unite in one individual, and we may therefore look for a work of standard reference for all time.

UNIVERSAL INTEREST TABLES.—By Prof. George William Jones, of Cornell University, Ithaca, N. Y. Published by Frick & Apgar.

This is a cheap and extremely useful little manual, showing at a glance the amount of interest due on any sum, for any time, long or short, at various rates of interest. It is worthy of a place in every business man's office at least.

KANSAS CITY REVIEW OF SCIENCE AND INDUSTRY.—Theo. S. Case, editor. This vigorous scientific monthly, has just completed its fifth year. The editor notes that the circulation is barely sufficient to cover expenses, at which we are surprised. It can only be that Western people do not know how good a magazine they have at their own doors.

THE PENN MONTHLY.—Published by Edward Stern & Co., Philadelphia. In this excellent magazine the articles are usually such as appeal to general intelligence, and not infrequently are some among them which appeal to that special class to which so many of the readers of the GARDENER'S MONTHLY belong. In the April number, for instance, is a paper by Dr. D. G. Brinton, on the Books of Chilán Balam, books which were in existence on this continent no one knows how many hundreds of years before the white men found it. It appears by Dr. Brinton's researches that they were destroyed as superstitious by the clergy of the Spanish races, who conquered the native races to whom these books belonged. These people had a written language, and a book of records was kept in every Indian village. The paper, as now in China, was made of the bark of a tree, and the books told of the medical virtues of the plants of that country, with probably many other matters which would be a mine of wealth to a student of the floral history of this continent. It is more than likely

as the advanced civilization of the north presses inwards against Mexican indifference and destructiveness, here and there remains of records, and other facts will be found which, when put together, will yet throw some new and bright light on the ancient history of this continent. We have already learned wonderfully from the opening up of Arizona and New Mexico, and we may judge from these how much more we shall know when civilization reaches the "heart of the dark continent," as Mexico as well as Africa may be termed.

SCRAPS AND QUERIES.

A GARDENERS' SOCIETY.—"E., New York City, says: "Many gardeners of New York desire your views as to the formation of a gardeners' society in this city. Be kind enough to let us know through your next issue what you think of it and how it may be done."

[In Europe societies for mutual improvement are common among gardeners. Gardeners are more settled there than here, and social ties, once formed, are rarely broken. In our country they are more migratory, and it is very difficult to devise any plan that will fit in with the circumstances. Intelligent gardeners can seldom get the recognition in society which their merits entitle them to, because of the great number of uneducated men who go as "gardeners," and the general public have no way of distinguishing the genuine from the spurious sort.

It has always seemed to us that in our country some society could be formed which would at least cover this want. Only those known to be worthy of association, from their acknowledged horticultural abilities, should be admitted to membership, and the seal of such a society would help many a worthy young man along in his struggle for position in a strange neighborhood.—Ed. G. M.]

RHYNOSPERMUM.—Prof. Bailey, Brown University, Providence, R. I., notes: "The real name of the so called Rhyncospermum jasminoides mentioned in April number of the MONTHLY, is Parechites, and it belongs to the Apocynaceæ. The name Rhyncospermum now belongs to a genus of Compositæ, which I need not say is wholly different in appearance and structure. The Parechites grow well here, and there are five old specimens in several of our hothouses. I have used it for years in my classes, with vinea, to illustrate its order."

[De Candolle's plant—the Composite—is Rhyncospermum, not Rhyncospermum. Aside from this is not our plant rather Trachelospermum than Parechites? Not having had the opportunity to settle these points, we have been in the habit of using the nursery name of Rhyncospermum provisionally.—Ed. G. M.]

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

JUNE, 1882.

Number 282.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It sometimes seems to one endeavoring to direct the public mind, and improve the public taste, that his labors are all but thrown away. As we go through distant cities, and note how barbarous practices and aboriginal indifference prevail it seems bad enough; but the conceit as to the value of effort in public enlightenment is completely dissolved when we look around on the garden practices about our own Philadelphia city. Trees, properly planted rather thickly at first, are left to fight for life with each other as they grow up; the desire for rapid growing trees induces the planting of rubbish, which grow too fast at last, only to be hacked by tree butchers, become miserable eye-sores, and very soon after sicken from disease, and meet premature death. Thousands of sound, healthy trees are planted only to die from the ignorance of removal; and valuable trees and shrubs, beautiful if pruned as true horticultural intelligence would have them pruned, are cropped over annually like the head of a prize fighter, and make the most abominable looking objects instead of the ornamental trees and shrubs which nature designed them to be. We want another Moses to lay down some horticultural commandments, and to press them on to public observance with all the zeal and

energy of the great Hebrew leader. He thought he had covered all when he forbade his followers, not to make to themselves the likeness of anything in the heavens or on the earth, and he never dreamed that there would arise cultivators of plants who would worship objects of their creation, not like to anything either in heaven or earth. Surely his holy wrath would be stirred at what he would be compelled to see! Our ire—the editorial anger—often rises when he passes the city squares, and the grounds around public property. But before the pen is dipped in the ink to record his opinions of “City Fathers,” he glances at the grounds of those who love to see them lashed, and it is all the same. Can we expect representatives to do more than the people they represent? Of course there are some exceptions. Not all public work or all private grounds are disgraceful in a gardening sense. A few are worthy of all praise, but somehow there does not seem enough of these, as there should be after almost a quarter of a century of work in editing a GARDENER'S MONTHLY.

Still we must not lose all heart. We will still have some faith though small, that the seed we sow may here and there grow to a good sized tree, which will not be butchered and torn by the “trimmer's” ignorance. Let us therefore look at once—now at this season—and see how

we may make the trees and shrubs objects of beauty. Take the flowering shrub. If you let it alone, it will probably get too large for the place it occupies; or it will send out its sprawling branches with no more pleasure to the eye, than the tangled hair of an unkempt child. Suppose now it is a *Deutzia*, *Wiegela*, *Forsythia*, or something which has flowered this season, take out at once those branches which have weakened themselves by blooming, cutting them away clean to their source. In many cases this will be to the ground, that is in cases where there are numerous vigorous shoots coming up from the ground. The idea is to give encouragement to numerous vigorous young wood, without leaving any stumps of the old growth. The bush may have some of its strong growth nipped here and there, to make it dense, but generally there will be enough of the new shoots which follow from the thinning out, to fill up all the open spaces. So of trees. It is extremely injurious to cut off large branches. If the place where the tree is growing is limited in space, cut out the branches down to some younger strong shoot, which, starting lower near the trunk, may replace the branches getting beyond the limit desired. By looking at this matter, at this season, every year, a tree will never outgrow its boundaries and will always look fresh and young. You will never be tempted by a tree-butcher to "saw the head uv it off fur yees."

COMMUNICATIONS.

THE ADORNMENT OF SMALL YARDS.

BY MISS A. G.

Stands of flowers may be used to advantage in some yards, filling a blank space on a pavement. If these cannot be used, groups can be made of pot flowers, some being raised in the centre by boxes or bricks. A small palm, or other large plant, set in the centre with fuchsias and geraniums making an oval around it, has a good effect. A corner filled up with large plants at the back also forms a good and convenient arrangement. Cactuses can be grouped in this way. *Rex* begonias are beautiful arranged in shady places on rising shelves. Rustic stands, hanging baskets, old stumps as stands for boxes, or vases, all can be used. Ivy trained about the latter add much to the beauty. For vases or baskets there are many lovely plants, such as trail-

ing abutilon, *Peristrophe variegata*, *Convolvulus Mauritanicus*, *Othonna*, *Mesembryanthemums*, *Begonia macrophylla*, *Petunias*, *Oxalis* *Bowiei*, *Floribunda alba*, and rosea, *Trailing Fuchsias*, *Senecio scandens*, or German ivy for sunny spots. While for half-shaded places there are the lovely *Trailing Lobelias*, the *Tradescantias*, *Torenia*s, *Anthericum folia variegata*, *Nasturtions*, *Senecio*, green and variegated, &c. For all shade are the delicate climbing ferns, mosses, *Tradescantia*, and the *Cissus discolor* with its lovely leaves. This plant may be kept through the winter in a moderately heated room, and does not require a hothouse to winter it. The pretty *Kenilworth ivy* and the useful *Lysimachia* must not be omitted. Both of these, and the *Torenia* will cover bare spots with beauty, and bear the sun well, if watered freely and constantly.

Where gateways of iron are used, or those with heavy posts of wood, they may be made to add dignity to the premises by being adorned with vases, or arched with vines, or trailing shrubbery. They should present an inviting aspect to the visitor. Who, that looks through a garden gate into a lovely picture of flowers and vines, does not feel an added regard for the owner of such grounds.

The quality of the earth is very important in floriculture. It should not contain any of the rubbish so frequent in city yards, nor any matter to cause fermentation. Where the beds have been filled with building refuse it is best to have it all removed. One-third of street dirt, or anthracite coal ashes, could be used in refilling without detriment to the plants. I have seen beautiful *Roses*, *Forget-me-nots*, *Pinks*, *Pansies*, &c., grown in beds, the foundations of which were pure coal ashes (anthracite). Field earth is next best after rotted sod, or good garden mold. In our climate of hot summers it is better to sink rather than raise beds above the general surface, as they retain moisture longer.

As Americans, we have no need to blush at the progress made in the tasteful adornment of our houses and grounds. We may see more systematic work and finer specimen plants in parts of Europe, but Americans will always miss the luxuriance of growth produced by our almost tropical summers. We have heard of flower-loving Germans standing in pleased amaze at the beauty of the *Weigelia* as grown in this country, not to mention the wealth of bloom in other plants. We are, too, more select as to

flowers for bouquets, and we have reason to be, for we have greater choice.

The taste for floriculture has grown rapidly and almost keeps pace with the cultivation of fruit, and I hope to see the time when every yard will have its bed of flowers, as well as fruit trees unmolested by the hatchet or pilfering fingers of the modern traducers of the juvenile George Washington.

We are reminded of a venerable child-loving grandmother who wished that all our public roads might be lined with fruit trees, and I add with flowers, that all might partake and enjoy what has been provided as food and pleasure for the inhabitants of this, our earthly home.

HYDE PARK, ST. LOUIS.

BY CHARLES CRUCKNELL.

Hyde Park is situated in the northern portion of the city and contains about fourteen acres. The trees are young and do not afford sufficient shade at present from the sweltering heat of the summer sun. A beautiful fountain of marble is erected in the centre of the grounds, and an extremely large basin surrounds it. Nymphæas are growing near the edges, the admiration of those familiar with them and a source of wonder to those who "can't see how leaves and flowers can grow on the top of water without roots."

At the bottom of a deep depression on one side of the park is a pond, and here is centred all the floral beauties of the place. Many grasses are growing, and conspicuous among them are the *Gynerium argenteum* and *Erianthus Ravennæ*. The variegation of *Arunda donax* burns out badly in summer.

There is a perfect wilderness of roses. Many old varieties and some of the newer kinds are to be seen. Louis Philippe, Agrippina, Souvenir d'un ami, Malmaison, Duchess of Edinburgh and many others, vie with each other in the bounty of their bloom, but the queen of them all is that beautiful chaste rose "La France."

A bed composed of *Plumbago capensis* and *Torenia Fournieri* superbum in bloom, attracted my attention by the exquisite blending of the colors. The lavender blue of the *Plumbago* intermingling with the brilliant darker blue of the *Torenia* is something worth remembering. Probably the shape of the flowers had also something to do with the illusion. Most growers are familiar with the little stove-house gem *Torenia Asiatica*, and its wonderful way of blooming with

generous culture under glass. Just such a gem is *Torenia Fournieri* in the open ground. *Plumbago Larpenæ* used as an edging or border to a bed of *Coleus*, showed what a useful plant this is when placed in good company.

Manettia cordifolia an old greenhouse favorite, planted in the open ground and growing over rude trellises, was a mass of flowers early in July, a month or six weeks earlier than it generally blooms under pot culture. Another old favorite, *Erythrina crista galli*, rarely seen in gardens now, was brilliant with its queer shaped flowers. There is a large greenhouse in the park where the plants are kept over winter, and this may in a measure account for the mass of flowers to be seen here during the summer months.

THE ARBORETUM, DERBY, ENGLAND.

BY WM. T. HARDING, MOUNT HOLLY, N. J.

It is announced in recent advices from England, that "applications will be made to Parliament for power to transfer the Derby Arboretum grounds from control of the present trustees, and vest the same to the corporation of the Borough of Derby. And for the purchase of additional land for the extension of the Arboretum and new recreation grounds. To make rides, drives, walks, gardens, shrubberies and other ornamental work. To build offices, lodges, arbors, summer-houses, etc. Also, to include Bass' recreation grounds and public baths, and provide for the public use free of charge."

It is possibly in the recollection of many of your readers that the Arboretum was presented to the town of Derby by the late Joseph Strutt, Esq., in 1840. This munificent gift, after the grounds were properly laid out, and the Arboretum botanically arranged and planted with a fine collection of trees and shrubs, correctly and conspicuously named, was generously donated to the public for the sake of "sacred science," healthful pleasure, and intelligent recreation. Since that time the Arboretum has always been a favorite resort for the pleasure seeker and scientific visitor, who each enjoyed the boon, according to their individual tastes or views of what was most agreeable to their feelings.

Besides the landscape effects, which were of a high order, with here a group of trees, or clump of shrubs, and there an isolated specimen, illustrative of some botanical family, among which were judiciously placed handsome objects of statuary, with beds and borders of flowers, suf-

ficient to enliven without producing a bizzare appearance. The *tout ensemble* was a most delightful combination of the useful, artistic and beautiful, according to the natural fitness of things.

It has occasionally been the writer's privilege to visit, though at long intervals, this popular resort. And he pleasantly remembers his admiration of the young and handsome *Araucaria imbricatas*, which were not so common in England forty years ago, with the many choice specimens of coniferæ which then adorned the grounds. But alas! their beauty was all faded and gone in the summer of 1881. At least those of a teribinthine nature seemed to have disappeared altogether from the terrestrial scene. Closely environed with bricks and mortar, and deeply dovetailed into the closely-built and murky town, as is this *bijou* Arboretum, the stately young pines, once so pleasant to behold, soon sickened and died. In other words, they were suffocated with the dense and poisonous smoke which frequently hangs like a dismal pall all over the town. So after vainly struggling for existence they, one by one, died off, and left the deciduous trees and shrubs, with the broad-leaved evergreens, in possession of "the place that once knew them, but will know them no more."

There are hopes of better results attending the prospective Pinetum, where the new Arboretum grounds are planted, situated as they are at some distance from the town where the atmosphere is more congenial to their nature.

At any rate the project augurs well for that ancient county town or, in fact, for any other place where the public look for innocent enjoyment upon the face of nature.

"Where various prospects gratify the sight,
And scatter fixed attention in delight."

PRUNING ORNAMENTAL TREES.

BY B. S. OLMSTEAD, RYE, N. Y.

I beg a small space in your columns, to say a word or two against the method of pruning flowering shrubs, so prevalent among gardeners throughout the country. Perhaps a good name for this method would be "close shearing." By it all the flexible beauty and grace of branches and spray are destroyed, and the subject, thus barbarously treated, looks now more like a barber's gigantic lather brush set up on end, than the beautiful thing it would become, if let alone, or

at least, if judiciously pruned at the proper time of year. By this method all subjects are treated alike, not only those whose flowers are borne upon the new wood, but also those which send out their bloom from the previous year's growth. All are cut to the same pattern; and if anything more stiff and formal, more shorn of all beauty, can be shown, then I hope I shall not be there to see it.

As I write on this sunny, winter day, a glance through a window near my desk, causes my eyes to rest upon a shrub, which has been treated in quite another manner. It is a *Spirea prunifolia*, set out by my own hands, in the spot where it now stands, just twenty-two years ago this coming April. From that day to this no pruning implement has ever deflowered it. It has grown, as God intended it to grow, into a beautiful spray-like fountain of green and white; and now, as the gathering snow-flakes, rest upon its branches, gently and gracefully bending them outward, nothing but the green shimmer of the leaves is wanting to bring to mind what a beautiful thing it is when it is in full bloom. Surely this is the better way.

CULTURE OF HARDY CYPRIPEDIUMS.

BY H. J. WOOD, UTICA, N. Y.

I notice under head of Scraps and Queries, page 70, March number of the *GARDENER'S MONTHLY*, your correspondent Q. wrote asking for information as to the treatment of our hardy *Cypripediums*.

I have succeeded well for years with *C. spectabilis* and *C. parviflorum*. The above are in border on north side of my house, in rather heavy, wet soil, and get no sun. The only care they have had has been plenty of water in dry seasons. I have also grown and bloomed *C. spectabilis* in the open garden in light rich soil with plenty of water. Three years ago at this time I had a fine pot of it in bloom in my greenhouse. I can now show a well grown plant which I think will bloom within ten days.

C. spectabilis has withstood all sorts of harsh treatment with me for fifteen years and I have lost only two plants; one from forcing and the other from long neglect.

I have *C. acaule* but only from last season; therefore, cannot say what can be done with it. It is under glass now doing well, also giving it same treatment as above in border.

C. pubescens is not in my collection, but I would like to have it.

EDITORIAL NOTES.

ORIGIN OF THE MANETTI ROSE.—Referring to the origin of the Manetti Rose, a recent issue of the *Journal des Roses* states, that it was raised from seeds obtained from Persia by M. Manetti at the Botanic Garden of Monza, Italy. In 1837 some plants were sent to Mr. T. Rivers at Sawbridgeworth, by M. Crivelli of Como, Italy; and it was introduced from England to France the 20th of March, 1840, by M. Portemar fils.

DOUBLE DAHLIAS.—Double Dahlias are not double in the sense that a double Rose, or other flowers are double. The florets of the disk have simply been enlarged, so as to be somewhat strap-shaped as the ray florets are, instead of tubular as they are normally. But it is said there is now a real double dahlia—that the central florets have each another or others inside of them.

IMPROVED WALL-FLOWERS.—One by one florists are taking up the old fashioned flowers and are improving them. Now it is the old Wall-flower. As seen this year the new forms are very beautiful.

A LARGE VIOLET.—Says the *Journal of Horticulture*: "We send you one bloom of the Swanley White Violet, this must be the best of all whites." So writes Mr. Cannell, and the flower we received is certainly the finest of its kind we have seen. It was exactly one-and-a-half inch in diameter, and contained forty petals, imbricated, and constituting a neat and well-formed flower."

CLOVER IN LAWNS.—White clover is still often sown with lawn grass, but few who know what is what in lawn management do so any more in our climate. It creeps along and crowds out everything else, only to be itself burned out by the first hot sun. Then we have bare places which the abominable "Fall" or "Crab grass" delights to occupy. The heat just suits that grass. Indeed if it would start early, and not leave the ground bare till midsummer, it would not be such an objectionable thing.

PYRUS SALICIFOLIA.—A note on this deciduous tree may not be out of place now that the planting season has arrived. It is surprising it is not more planted, and would be perhaps if it was more generally known. It grows into a shapely tree when sufficient room is allowed it to develop naturally. This *Pyrus* attains a large size, and

would be suitable for planting in any position singly. When in flower during the month of May a good tree is very beautiful, being covered with its snow white flowers. It appears to thrive well in smoky positions, and cannot be very particular about soil, as it grows here freely in poor soil. When in flower this season the bloom was severely injured by frost, but in spite of this it is bearing a good crop of fruit. The tree fruits annually without fail. The fruits, however, are of no service or beauty, but as a flowering tree it is worthy of a place, and is quite distinct in the foliage from other trees. The great freedom with which it fruits annually has impressed upon my mind that it would in all probability prove a good stock for some Pears. I shall be glad to know if it has been tried, and if so with what results.—*Journal of Horticulture.*

HEALTH AND SHADE TREES.—Rufus W. Griswold, M. D., of Rocky Hill, Conn., has some remarks on the destruction of shade trees as a sanitary measure, in a popular medical magazine from which we take the following: "A very intelligent physician, driving up to my door once on a time, said: 'You have got too many shade trees; I don't like them; they are unhealthy; don't you have ague?' 'Yes, badly.' 'I should expect it; you ought to have these trees cut down.' 'Ah! do you see that house yonder, completely shut in by trees?' 'Yes.' 'They don't have ague there at all! do you see that house on the corner? And the one over there? And the one next? And the two still further below?' 'Yes.' 'You see there is not a tree near one of those dwellings; into them all the sun pours and bores all day; there is not the least interruption to it.' 'Yes, I see that.' 'Well, in every one of those houses they have ague and fever worse than I do in mine.' 'I should not have thought it.' 'Not on your theory. But your theory isn't good for anything; it doesn't hold; you may sometimes think it proven; but if you will go to the bottom of it you will discover that it isn't worth a rush. Given facts upon which you build up your deductions to-day, are contradicted by another equally good set of facts that present themselves to-morrow; and your conclusion as to the causes of ague vanish. It is just as reasonable to say that my neighbor has intermittent in his family because he has n't any shade, as to say that I have it in mine because of the shade. As the actual fact, neither the trees nor the lack of them has the

least connection with the disease in a single house in the town."

Kew Gardens.—These gardens, under the able management of Dr. Joseph Hooker, Director, and Mr. John Smith, Curator, have become the pride of the great mass of English people, and the admiration of the world. Even the French, close neighbors of the English, are moved to desire something as grand and as useful. At a recent meeting of the *Société Nationale d'Horticulture de France*, the subject was discussed, and M. Ch. Joly concluded an excellent address on the subject by remarking that if the French people were like those of London, to wake up to the wonderful resources offered by the collections gathered together in their *Jardin des Plantes* at Paris, their garden might also be among the admirations of the world.

But to our mind the Paris garden is not as well situated to attract as the Kew garden is. The latter is far in the suburbs, and offers a fine holiday excursion; and, besides, the Hookers—father and son—have had the good sense to unite a certain measure of horticultural attraction to pure scientific features, and in this way all classes of the public feel themselves interested in its support. This can scarcely be done in the Paris garden, and it will always be against its friendly competition with the Kew institution.

SCRAPS AND QUERIES.

PROPAGATING HYDRANGEAS.—A. H. Abbott, Little Blue, Farmington, Maine, says: "Last spring I cut off two twigs from *Hydrangea paniculata grandiflora* and stuck them into the ground for plant stakes. To my surprise they began to grow, and even flowered. On examining them in the autumn I found them well rooted. In next number of the GARDENER'S MONTHLY please mention the fact, and state whether it is generally known that this plant will root as readily as the willow."

[It is not generally known that this plant can be propagated in this way, and the information is valuable.—Ed. G. M.]

INDIAN CHERRY.—This is the name of the pretty spring flower referred to in the following card from a correspondent at Walkertown, King

and Queen's County, Virginia. Botanically, it is *Amelanchier Botryapium*, and though popularly known as a cherry, it is really more nearly allied to the apple. It has other common names—Snowy mespilus, June berry and Shad-berry:

"I send you by this mail a little box containing bloom of a tall shrub which I found blooming on the side of a swamp. It is fifteen to twenty feet high, slender rather than bushy, and presents a very handsome and striking appearance. Please give me the name and some information about it. I thought at a distance it might be *Chionanthus Virginica*, but it seems to be quite different on closer inspection."

CATTLE IN CITIES.—A Burlington, Iowa, correspondent says: "We are still outraged in this town with roaming cattle, horses and geese. Why is it that I never see any articles in the horticultural nor agricultural papers in reference to this roaming at large of stock in most of the United States? Why will people spend so much money for fencing out stock, instead of the owners fencing their animals in, or herding them? Millions of dollars spent for fencing and lawsuits, in reference to this relic of barbarism; consequently not much money is left for beautifying and improving the roads and streets. In journeying through life many a person wonders at the general 'cussedness' surrounding us all in one shape or another."

[When we say that this strong language is from the pen of a gentle lady, the reader will understand how badly she feels about this degrading and disgusting nuisance. It is amazing not only that the press is generally silent on this outrage; and further, we have wondered that local agricultural societies do not protest against it.—Ed. G. M.]

VARIEGATED ARBOR VITÆ.—Messrs. Douglass & Sons, Waukegan, Ills., send us specimens of some silver and golden forms of American arbor vitæ. They are very beautiful, and it is good work to watch the beds of seedlings, and select these beautiful forms for publication—yet our pleasure has its sad shades. Only think of the terrible, long Latin names these little variations will receive when they get to England! If our very good but somewhat sensitive neighbor of the *Garden* would strike for a reform here, how gladly would we not co-operate with him!

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

There seems to be a growing taste for greenhouses, chiefly, as it would seem, for the purpose of having flowers at command all winter. At this season the resolve is usually made by those who have none, to supply the luxury before the season is over. It is to be regretted that those who desire these pleasant attractions to a home, do not get the opportunity of better advice in the building. We have seen many cases where the houses have had enormous amounts of money spent on them, to the absolute obstruction of the main idea,—plant growing. Houses that would have been made models of beauty and very successful as plant houses, for \$500, have been rendered useless by having \$2,000 spent on them. The village carpenter, or the grand city architect or builder, have alike had their turn at greenhouse building; the intelligent garden architect is seldom given a chance.

But here again we think the intelligent gardener misses it, in not more generally studying these outside branches in connection with the practical parts of his profession. There is room for such men in every large city and town in the United States. A florist, who is at once a good nurseryman and an intelligent gentleman in every sense of the word—who could at once grow plants, tell all about them, design a dwelling house or horticultural building, make roads, and have a good knowledge of the correct principles of art and taste—would soon be among the wealthy leaders of society in any district, provided he has ordinary business tact added to his intellectual accomplishments.

In learning these things common sense is of more importance than scholastic training. The one who can profit by experience, is more rapidly on the road to success than the one who spends a year at college. Passing through a greenhouse recently, in an establishment under the charge of a very good gardener, a workman was found at work putting down a mortar floor. The other, which had been down but two years, was worn out. It never occurred to the excellent gardener to profit by this experience.

Mortar is the result of crystallization, and anything of this nature readily fractures under a sudden blow. Mortar floors will therefore soon wear out under the heels of pedestrians. But a lime floor is a different thing from a mortar floor. The lime must slack wholly under water, so that there is no chance to heat so as to engender crystallization. When mixed with three or four times its bulk of sand, so as to make a sort of limy mud, and then rolled with a heavy roller several times while drying, so as to press out every particle of air, we have a floor as hard as iron that will never crumble under the feet. Then as to mortar itself. Even the average mason does not know how to make it, and the gardener should be able to tell him how to do it. Here we want crystallization, and only water enough should be given to raise the heat in the lime, and the sand should be added while the lime is slacking. Perhaps half the mortar in use even by good masons, rarely hardens. The clay or dirt in the sand generally gets the blame, but it is rather ignorance of the laws of crystallization. Again, in regard to walls. One has perhaps to be built up against a bank. The earth on the back of the bank may be soft, and admit water. A mortar wall is built against it. The mortar being little else than plaster, absorbs water. This freezes and the mortar expands. Then the wall falls down. The good gardener learns a lesson. The next time he has a dry wall built—that is to say, one without any mortar—and he never after this puts up a mortar wall against soft earth. But the man who cannot learn—the one who wonders why that stupid fellow gets along, and he, poor, hard-working fellow, never thrives—he builds up the mortar wall just as before, until bad luck throws it down again. Recently the writer saw another very good fellow in his way, stopping up with cement a crack in a brick flue. He had often done it before. He had never learned to do it once for all. There was the crack, and he plastered a quarter of an inch all over it. It cracked, and will crack again. If he had made the small crack a large one, so that he could have pushed the cement right into it—a solid mass in the

crack instead of a thin skin over it—his work would have been done for all time. Again, there is the man who is always having trouble with his cistern. He has nine-inch brick work, all laid in cement, and he has a quarter of an inch thick of cement all over the bricks, but he was "cheated, sir, in that cement. It must have been badly adulterated to leak as it is always doing." That man will never learn, but the one who profited by his first bad experience that leakages were from two causes—the one from porosity, and the other from unequal contraction, will. He tries to make the coating thoroughly dense, so as to close every pore, the thinner the better, because there would be less likelihood of unequal contraction in drying. So the next time he does not care whether the bricks are in cement or not, or whether there be any bricks at all as long as there is some rough surface to dash his cement against. Then he puts his cement made with water, as thin as cream, and works it with a plasterer's trowel till every particle of air is pressed out, and then he has a surface of cement as hard and as smooth as polished glass. Indeed he learns that unless he could almost see to shave in the wall of his cistern, the work has been very poorly done.

These illustrations will show what sort of genius is required to be a successful gardener, and the illustrations themselves may be practically useful at this season, when one is thinking of greenhouse building and similar garden work.

COMMUNICATIONS.

ATTENDANCE ON STEAM BOILERS.

BY A. B. FOWLER, EXETER, N. H.

In response to "Wm. H. B.'s" queries, I would say that the fires in a steam apparatus may be left over night. Steam may be carried up or down at pleasure if certain rules are followed—and the temperature of the steam pipes is not changed.

Providing the boiler be large enough a dwelling house may be heated from the same boiler as the greenhouses. I should not advise placing the boiler in the greenhouse. Do not imagine that a threshing machine boiler would be of sufficient capacity to do much heating.

The pressure of steam required is from one to five pounds. Regarded from an economical point

of view, steam may be carried from 200 to 300 feet with but very little loss; if the pipe be well covered, and the pressure increased, it may be carried much further. I trust the above answers will enlighten "Wm. H. B."

CULTURE OF THE CHRYSANTHEMUM, &c.

BY JOHN WOODING, PENCROYD, PA.

This subject seems to have laid dormant for some time. I have seen no mention of it in the MONTHLY of late until a recent issue, February number, page 38. I believe in that writer's method of cultivation. If well grown plants and a profusion of bloom is wanted, it is necessary that the cuttings should be rooted early and the plants as far advanced as possible, and before their growth is arrested by the hot weather. They do best in a moderate temperature. I saw the Chrysanthemums grown at the Horticultural Hall, Fairmount Park, last Fall. They were beautiful, in good variety, and well grown plants.

This class of plants is thought a good deal of in England. They are cultivated extensively on first-class places, and are also raised on a smaller scale by many of the working people who take a special pride in them.

Chrysanthemum shows are held every year in the neighborhood of London, and the gentlemen's gardeners devote special attention to their care, as it is an inducement for them to try their best to beat their neighbors. The prizes offered for the best grown plants run from one pound to three pounds ten—five to eighteen dollars. I attended a Chrysanthemum show at Kingston on Thames, Surrey, two years ago last November. I think there were about twenty-five gentlemen's gardeners exhibited plants there, and also two or three noted nurserymen attended with plants and made a fine display. The rules of the Chrysanthemum Society do not allow nurserymen to compete with gentlemen's gardeners there. They exhibit as a class by themselves.

The leading varieties at that time, which took first prizes were large flowering George Glenny, Jardin des Plantes, Mrs. George Rundle, Pink Perfection, Boule de Neige, Golden Nugget, Maid of Kent. Also a number of the Pomponé varieties took prizes. They were trained in various shapes on wire and were a mass of bloom. The majority of the large flowering kinds were disbudded and superfluous shoots rubbed off. Plants grown as standards and large flowers predominated. They were grown in from

eight to ten inch pots, and were from six to seven feet high. I might add that these shows are well patronized by all classes of people, who are charged a small sum to enter the exhibition.

I don't think it possible to grow Chrysanthemums in this country as large as in Great Britain, even under the best known methods. The difference of climate is no doubt the trouble. If there is a possibility of doing so I would like to know how.

I would like to see this subject reviewed in the MONTHLY by some kind reader, as I think this class of plants deserves especial attention and care. They come into bloom at a time of the year when other flowers are scarce.

STEAM HEATING.

BY A. D. MYLIUS, DETROIT, MICH.

I have read the articles in the recent numbers about steam heating, and I am quite sure it will supersede hot water. I am heating four houses, twenty-two by sixty feet each, with one ten horse-power boiler, costing \$200. If I used hot water two boilers would be necessary, besides double the amount of feet of pipe,—and four-inch pipe, where for steam, one inch is large enough, except main pipe running through shed which is two inches. I figured for hot water, boilers and pipes, \$1,500. Steam costs, boiler and pipes, \$600 for the four houses, \$900 difference, besides less time used in firing, less coal, &c., at prices that figured this fall and last August and September.

GREENHOUSE NOTES FROM ST. LOUIS.

BY CHARLES CRUCKNELL.

In Tower Grove Park palm house there is a group of bananas, in the centre of which is growing the largest specimen of *Musa sapientum* in this country. The stem and leaves are colossal. The smaller members of this group are from six to eight feet high, and look like pigmies alongside of this giant.

The new *Tradescantia multicolor* is very beautiful, but has a strong tendency to revert back to the old *T. zebrina*, from which it is probably a sport.

I counted the flowers (male) on a single spathe of *Astrocaryum murumuru*, and found their number to exceed a fraction over ten thousand (10,000). The plant had three flower-spates this year. This plant is growing in the

unique collection of Mr. Brown. *Strelitzia augusta*, in the same collection, has been in bloom for the past four months.

Several important additions have recently been made to Mr. Henry Shaw's extensive collection of plants. Notably among the tree-ferns—*Cyathea Dregei*, eight feet high to the crown and three feet in circumference around the middle of the stem, is the largest. A pair of *Dicksonia Antarctica*, not so stout, but quite as tall. There is also a magnificent specimen of the silver tree-fern, *Cyathea dealbata*. But the gem of the collection is a *Todea Africana*. This is a curiosity. There are numerous stems growing from the base which is gnarled and knotted like the roots of some old tree of the forest. The new palm house has been open to the public all winter, but nothing has transpired publicly as to when the dedication will take place.

The winter has been so mild that dahlias left in the ground over winter are at this date (April 15th) sprouting vigorously.

RHYNOSPERMUM JASMINOIDES.

BY WALTER COLES, BELVIDERE, N. J.

No doubt Mrs. M. D. Wellcome is right in saying this charming plant is not so extensively grown as it should be. But we may find it advertised in many catalogues. I have at present a small plant in bloom in my greenhouse which perfumes the whole house with a very pleasing odor. Some years ago I grew a very large plant of the above-named, and trained it on a balloon trellis and always managed to get it at its best by Easter. Few plants surpass it for decoration; it is also an excellent flower for cutting, for making bouquets, &c. The plant can be grown with almost any general collection, but it delights in a warm, moist atmosphere, with good rich soil to grow in.

[It is rather a common plant, and found in most good plant collections.—Ed. G. M.]

EDITORIAL NOTES.

BEAUTIFUL ORCHIDS.—The growing popularity of orchidaceous plants is evidenced by the many beautiful specimens exhibited so often at the monthly meetings of the Germantown Horticultural Society. There were numbers at the last meeting from William Jamieson, gardener to

Mr. Joseph Harrison. One, a *Vanda suavis*, variety *Veitchii*, had a grand raceme with thirteen expanded flowers and others in bud, which was very much admired. Had it but a single flower it would still be a beautiful orchid.

GREENHOUSES OF PATTERSON BROS., PITTSBURG, PA.—These comprise over 30,000 feet of glass, and roses and other flowers are forced to their utmost, but all are heated by one steam boiler. The Pittsburg papers speak of it as one of the wonders of the city. Much of the success of this great establishment is due to Foreman Randolph.

THE INDIAN CURRANT IN DECORATION.—Among our notes is one concerning the spray of this plant for cut-flower decoration. We saw some used last summer in connection with other things, and it had a very pretty effect. In landscape gardening also it can often be used to advantage. In an old garden near Asheville, North Carolina, a huge clump of this was one of the finest things seen by the editor in his summer travels.

BOUQUETS IN THE LONDON MARKET.—A correspondent of the *London Journal of Horticulture* remarks: "One of the most attractive and original bouquets that I have seen for some time I recently noticed in the grand row of Covent Garden Market. It was composed of *Maréchal Niel* rose buds and half-expanded blooms, the *Yellow Marguerite* (*Chrysanthemum Etoile d'Or*) and a large rich purple self *Pansy*. These were arranged informally with fronds of *Adiantum cuneatum* and *A. gracillimum*. The simplicity and freedom of the design and the contrast of the colors rendered the bouquet by far the most beautiful, to my mind, of all in the market."

ARRANGING FLOWERS FOR EVENING EFFECT.—A correspondent of the *London Journal of Horticulture* gives the following good hints: "Let a close-fitting shutter be provided for the window, so that if necessary daylight may be excluded while arranging flowers for evening parties. I have found that if flowers are arranged by the same light as that in which they are to be used, much better results may be obtained, as it is well known that some colors which look well by daylight will spoil the whole arrangement when seen under artificial light. In conclusion, I will add that the less hard-and-fast lines we admit in the arrangement of cut flowers the better, but the following I would recommend: Avoid glar-

ing colors, let white predominate; use a good proportion of light green foliage, and do not crowd the flowers."

FLOWERS ON THE DINNER TABLE.—A correspondent of the *London Journal of Horticulture* thus describes what he regards as a tasteful arrangement of a dinner table which he saw: "It was a small circular one, having a cup and two tall water-jugs in the centre, and afforded space for a circle around the centre of eight slender vases, four of which had white Carnations, and four had half-opened flowers of *Madame Falcot Rose* for blossom, two flowers and a bud or two being used for each vase, with a leaf of *Ampelopsis*, two large leaves and a spray of *Pelargonium filicifolium odoratum*, three spikes of dried *Briza minima*, and two of the long slender shoots of the *Ampelopsis* pendent from opposite sides. The *Roses* and *Carnations* were placed alternately in the circle of vases, and instead of being festooned the *Ampelopsis* shoots were lightly interlaced outside the vases, the effect being novel and pleasing."

PASSIFLORA PRINCEPS.—This is an excellent climber for a warm greenhouse, and flowers freely when properly treated. It should not be pruned much, and none of the old flower-stems must ever be removed. It flowers again and again on the same flower-stalk; hence, unless for use as cut flowers, none of these should ever be removed. In the winter season they hang in withered-looking bundles; but in the early spring the sap floods the channels with new life, and a fresh raceme is thrown out from the extreme point of last year's flower-stem. And this goes on year after year, while other pendants of dazzling brightness spring forth near the base of the flower-stems. Those also that have been shortened back sometimes break into fresh clusters of blossom. Many of them, however, die back; and, unless obliged to cut for the flowers, none of the old flowering branches should be cut at all. When the new flower-stem shoots forth, any dead points beyond it may be cut off. Another great advantage arises from this successional elongation of the flower-bearing branchlets. Almost any length of raceme may be secured for twisting around the stems of stands or vases. This enables the decorator to place the flowering blossoms of this brilliant plant in telling positions to which shorter flower-stems, that must from necessity have one end in the water, could never have reached. Many of the

common Passion flowers have beautiful foliage, and sometimes cœrulea and other varieties will keep open throughout a long night. Though these lack the brilliance and size of those I have

NEW OR RARE PLANTS.

PAVONIA MAKOYANA. — Tropical malvaceous shrubs are particularly well adapted to Ameri-



PAVONIA MAKOYANA.

indicated, the whole of the Passion flowers are beautiful and interesting.—*Gardening Illustrated*. They like our summer heats, and flower the whole summer long. The genus

Pavonia has much in common with *Hibiscus*, *Althæa* and other well-known plants of our gardens. Indeed there is one very pretty summer bloomer, a small shrub, of the same genus, *Pavonia Wrightii*, under culture though not as well known. The species here illustrated is remarkable for its large colored bracts. In *P. Wrightii* these are small and green. Here they are so large as, in the picture, to look almost like a proper calyx. It was introduced to cultivation by Mr. Bull, of Chelsea, London, England, who says of it: "A handsome free-blooming plant of erect growth, with oblong-lanceolate coriaceous leaves; it belongs to the *Malvaceæ*, and has been imported from Brazil. Its corymbs of flowers are peculiarly attractive from the bracteoles being large, and of a bright rosy carmine color, forming a striking contrast with the dark purple corolla. The plant is extremely floriferous, and the blossoms remain a long time in perfection."

ORNITHOGALUM COARCTATUM.—Among the rare plants that attracted attention at the April meeting of the Germantown Horticultural Society, was a finely bloomed specimen sent by Mr. E. H. Skinner, of Troy, Ohio.

It has a head of white flowers, with a fuscous spot at the base on opening, but which disappears a few days after. Each flower is about an inch over, and with several dozen open at once it makes quite a gay appearance. We regard it as one of the most valuable of early spring bulbs.

SCRAPS AND QUERIES.

QUESTIONS ON STEAM MANAGEMENT.—"S. P.," Brooklyn, New York, remarks: "In reading your last issue, I found several communications in regard to heaters for greenhouses. I have also heard several gardeners talking in reference to steam as a means of heating, in place of our old friend, the 'hot water apparatus.'

"I think it would be well for all interested in the matter, to study the question in all its bearings before making so decided and radical a change.

"In the first place, up to the present time, I have found no means of heating greenhouses to give such universal satisfaction as the hot water apparatus has done, and when put up in a proper manner by good mechanics, have always found it reliable. It is economical in the

use of fuel, requires very little attention, and any man of ordinary intelligence can manage it. When a greenhouse is properly piped, and has a boiler of sufficient capacity to heat the same without forcing (which should always be the case), we can fix our fires at 10 P. M., and find everything going along nicely at six o'clock the next morning, and this can be done in the coldest weather, if the conditions in regard to pipe and boiler be complied with. The hot water apparatus, if put in properly, costs very little for repairs, as there is nothing to get out of order except the boiler, and that is good for ten or twelve years. I have known cases where they have been in use for twenty years, without any repairs save a few new grates. In a hot water apparatus a very slow fire will keep the water circulating all night, and by so doing gives us the proper amount of heat from very little fuel. Now the question arises, will a steam heater do all this? For myself, I am afraid not.

"I think that a steam apparatus will burn more fuel, for it is actually necessary that steam be kept up, or the heat goes down at once, and to keep up this steam we must have a lively fire. To get that permanence of temperature so much desired in greenhouses, a steam heater would demand almost constant attention.

"The parties getting up these heaters claim that they have self-regulating dampers, &c., that will just keep the steam and fire to a certain pitch; but my experience with all such contrivances is, that it takes very little to put them out of order, and then they are worse than useless. In all steam boilers there is more or less trouble with sediment, and these for greenhouses would be no exception to this general rule, and would require to be cleaned out occasionally or great injury would result to the boiler. No matter how safe you try to make a steam boiler, if placed in the hands of inexperienced parties, there is more or less danger of explosion.

"I could say much more on this subject, but not wishing to trespass too much on your valuable space, I will conclude by stating that, in my opinion, before steam can take the place of our old friend and banish him from the greenhouse, its advocates must make it as safe, convenient, economical, permanent of temperature, and easy of management as the hot water apparatus."

[It is not likely that steam will take the place of hot water for small greenhouses; it is only for the larger establishments that it seems a great

advance. There are some objections, as there are to all these projects, but the balance of advantages as against the objections, decides.

As to consumption of coal, we know of one large building heated by steam, which once had furnaces in the cellar. The average of coal used the past two winters, was no more than of the two winters previous. Fires are left on Saturday night, and the building has very little decrease in temperature on Monday morning.—Ed. G. M.]

STEAM HEATING AROUND CHICAGO.—“Chicago” says: “In your May number there is an article on steam heating, by Mr. W. D. Allen. Having read the articles by different writers, that have appeared in your paper, I have become interested in this mode of heating; but if, as Mr. Allen says, he uses the same system of arranging pipes, etc., that is so highly recommended by others of your correspondents, I hardly think it will pay to investigate the matter further. I am not impressed with the results as they seemed to me the last time I saw them in Mr. A’s houses.

“Mr. Allen’s statements in regard to cutting flowers are a ‘little off.’ Among the growers around Chicago, his houses are noted for producing nothing. His roses are the poorest I ever saw; Carnations, not much better; Camellias and Smilax he grows in great abundance and very finely. As for his growing more flowers

than all the others put together, there are dozens who leave him far behind. I say this that those who have visited Mr. A.’s place may not have an erroneous opinion of the flower growers around Chicago.”

[This is getting to be a personal matter. “Chicago’s” note is, however, legitimate, on account of Mr. Allen’s remark, and we have admitted it as a matter of fair play. But the question as to who grows the most or the fewest flowers, is not appropriate here. In regard to the question of steam heating, the point has little bearing. The only question involved is, Will steam give out more heat, and with less care and cost than hot water? If it will not do so on a small scale, will it do so when the houses are on a large scale? Is it under any circumstances more advantageous than hot water or hot air? and if so, what are these special circumstances? It does not follow that because all these or any of these questions may be answered in favor of steam, one will yet have plenty of flowers. Something else besides a good boiler, and a good attendance on a good boiler, before we can have flowers.—Ed. G. M.]

ODONTOGLOSSUM CITROSMUM.—“C.” asks: “Will some of the readers of the MONTHLY please give me some information concerning the culture of *Odontoglossum citrosmum* and *Cypripedium nevium*?”

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Of the many projects for securing a plum crop, none have been permanently successful but jarring the trees. It is not a great task, but it needs to be persistently followed. The plum knot, is less prevalent than it used to be; cutting away as it appears keeps it under, and generally prevents its being a serious evil. Apple and Pear sometimes suffer from the hot sun shining on the bark. Whitewash, that is lime wash, is objectionable on account of the glaring color, but it reflects the heat, and the tree is benefited. Hot

ground is an injury to most fruit trees. Shading, wherever it can be cheaply done is a great benefit.

Do not let any tree over-bear. The tendency with most trees when they once begin, is to do too much of it. The good fruit grower cuts out the fruit spurs or flower branches, before they are in blossom. If this has not been done, thin out the fruit.

Thin out sprouts from trees, where new branches are not needed, especially on the trunk or near the ground. The injury to trees from leaving them till fall is enormous.

Watch if your strawberry or raspberry plants

are diseased; if they are do not propagate from them. Spotted leaves or rusty shoots particularly avoid.

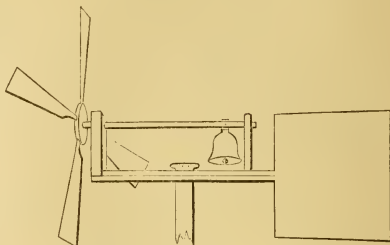
Grapes first coming in bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth, and great productiveness, are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick as a trellis, and generally do better every way. Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellises; for large vineyard culture, though the same principles hold good as far as they go, they will vary in their application.

Fine, rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sun-light is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun-heat, where the evaporating process goes on faster than the secretive principle, what should become a rich rosy blush in a fruit, is changed to a sickly yellow; and the rich jet black of a grape becomes a foxy red. Some Grape-growers of eminence, in view of the facts, shade their vineries during the coloring process; but others, instead, keep the atmosphere as close and moist as possible. The latter course detracts from the flavor of the fruit. The best plan is that which combines both practices.

Red spider, or some species allied to it, is getting to be a fearful pest in small orchards. A powerful garden water engine is the best thing that we know. Usually in large orchards there are not these troubles, and fortunately, no engine is required. In large orchards codling moth and the curculio are the chief enemies, but even here growers often depend on the great number of trees being too many for the pests. In small gardens

the trouble from birds is as bad as the trouble from insects.

Here is a sketch from an English source of



a wind clapper, to drive the birds away.

In the vegetable garden we must prepare for summer and fall vegetables. The market gardener depends on manure doing most of the work, but the amateur in his small patch will do well to look to deeply moved soil. Beans, peas, celery, salad, and such things do very well indeed in deep rich soil during even hot weather, but no where else.

COMMUNICATIONS.

THE MUCK QUESTION.

BY HON. JUDGE J. G. KNAPP, LIMONA, FLORIDA.

It seems a little strange that there should be any difference of opinion upon the subject of muck, as a fertilizer. Muck may be defined as vegetable matter, preserved in water; generally in water that is nearly or quite stagnant. Muck in time may become peat, without losing its vegetable character; and very respectable mineralogists insist it may be converted into coal; in which case it has lost most of its vegetable characteristics, and acquired accessions from other minerals, particularly sulphur. While its character of muck, and even peat remains, it is capable of being decomposed, or if you will, rotted, by additions of quick-lime, and also by sulphuric or nitric acid, and thus be fitted for pulverization and mixing in the soil for plant food. Freezing and thawing will also disintegrate muck. This last is not practicable in this region where the ground never freezes.

Men in the laboratories have succeeded in perfecting a few grains of wheat or other grains in a soil, out of which all vegetable matter which

could be driven off by red heat, had been driven when watered by water impregnated with nitrate of potash, and phosphoric acid; thence they have jumped to the conclusion, that plant food consists of nitrogenous and phosphoric matter alone. They were scientists, and their conclusions were the end of the law on that subject. Let us see. The soil they experimented with before burning contained vegetable matter. This became charcoal, in part, and so was left in the soil, or its mineral properties were changed in form; the potash and phosphorous became soluble; the lime, magnesia and soda became caustic, and much of it soluble, and thus also plant food. Of this no note was taken.

Again, they kept back the fact that the plants reared by them in their experiments were starved and dwarfed, and only gave a yield of less than one-tenth what they would if grown upon a soil rich in vegetable matter. Humus is a vegetable product, and exists only where there has been a decomposition of vegetable matter. No vigorous growth of plants can be had, particularly in farm and garden products, where the soil contains no humus.

They have entirely left out of their calculations the whole efficaciousness of the principle of life. How much is due to this principle, where it shall seek means for its own existence, how it may substitute one ingredient of food for another, and all its vast phenomena is ignored by them. What life is, what its functions, they cannot explain, because they never can know.

Are opinions thus arrived at to overthrow the experience of the practical agriculturist for ages? These last have learned that their heaviest crops grow on land, other things being equal, in which there is the greatest amount of finely pulverized vegetable matter. Hence, too, the best farmers delight in spreading upon field and garden, the manure from the stables, the hen-roosts, and barnyard; hence, we find these men to increase their pile, bedding their cattle on dried muck, and scattering it under the roost. Hence they pulverize it with mixing caustic lime, and grind it to powder, as far as possible. Leaf-mould has ever been a favorite prescription for the florist, when extra choice flowers are required. But leaf-mould differs very little from muck, in its constituent parts; both are composed of the leaves and small stems of plants.

All vegetation placed in the soil, within the reach of the influence of the sun's heat, rains and dews, will be converted to humus, and thus

fitted for plant food. And then through the medium of humus the plants receive the minerals required for the formation of wood, leaves and fruit. They receive them almost entirely through this source. Because the experimenters with soil deprived of vegetable matter, as far as heat could do, had none or very little humus to assist them, their plants are dwarfed, and almost unproductive; and instead of proving that plant food consisted of nitrogenous matter, potash and phosphorus, they rather proved where these are supplied with vegetable matter, like decaying grass, weeds, and leaves of trees, yielding an abundance of humus, they would have far better results; and that it was better to apply vegetable matters to the land, even if the poor, despised muck of the wet lands of Massachusetts, the sweepings of the streets of the cities, and the mud in the bottom of the ditches and drains were hauled out at a great expense, than to have none in it.

Against the assertion of such experimenters, as declare muck "worthless," there stands the experiments of all the gardeners, of all the States, who have applied muck in some of its "forms and modifications" to all varieties of soils, and always obtained favorable results from its use. With the gardeners, the farmers, who spread the manures from their stables and yards on their grain fields, who turn under their clover turf and harvest great crops of wheat, bear evidence. The tobacco growers of Virginia exhausted their soil because they did not apply to it vegetable matters, even where they did also use guano and other prepared fertilizers; while those of the Connecticut Valley, of the Chemung Valley in New York, and of Dane and Rock counties in Wisconsin, have not only kept their tobacco lands in heart, but have greatly increased the richness and productiveness of their soil and crops, by a liberal use of vegetable matters. The cotton planters of the South also give a negative testimony of the value of vegetable matter. These have for years burned all the weeds, grass, and old cotton and cornstalks which grow on their land, and have resorted to the manures of laboratories to rear a crop. The result with them has been the same as with the Virginia tobacco growers—worn out fields, and no remunerative crops. The prepared fertilizers, with a scant supply of humus, has only "burnt" the stunted plants.

The examples of the English, Dutch, German and French gardeners and farmers, could be

cited to the same point, in opposition to the laboratories, of the useful properties of muck and other vegetable matters, when used as plant food, but I must desist for the present.

RUST IN BLACKBERRIES.

BY T. V. MUNSON, DENISON, TEXAS.

As there is just now so much complaint of "rust" in blackberries, especially the Kittatinny, anything which will aid in avoiding or combating it will be hailed with great pleasure by all lovers of this delicious and wholesome fruit.

Last summer I had a plantation of Kittatinny badly affected by the "rust," so much so that I grubbed out all of the plants, plowed and harrowed the ground thoroughly, gathered the roots which were dragged out by the harrow, made cuttings of them, and planted a new plat, and also "heeled in" several thousand near by where also the old crowns or plants that were affected by "rust" were "heeled in." Many of these "heeled in" cuttings and plants were left unmolested. Now the roots left in the old "patch," those planted in the new, and those "heeled in," have thrown up vigorous, clean scions without a sign of rust, with rare exceptions, and these seem to be sprouts from the base of old plants and not from the lateral roots; while scions coming from the old crown "heeled in," are almost without exception covered with "rust." The new plantation made from root cuttings, and the old from roots left in the ground, promise to be in fine bearing condition for next season.

From the above I would infer that the rust fungus germinates and perpetuates itself in or near the dead wood of the old crowns, and suggests that we may convert a diseased plantation into a healthy one, and maintain it so for years. From my experience, the method suggests itself, viz.:

As soon as "rust" shows itself in a plantation—usually about the second or third year after cropping begins—cut out all the old crowns thoroughly in the fall, plow, harrow and renovate the soil well of, say one-half the plantation. In the spring thousands of vigorous scions spring up. Plow out two rows of proper width, and plant potatoes or other crops between. Carefully cull out all scions which may show "rust," and keep well cultivated during summer. This will be the bearing plantation the next season or two, till "rust" comes again, and

the portion left to bear should alternately be treated in a similar manner. Others may have had some similar experience, though I have not seen it in print, and may have pursued it to more definite results, which would be valuable matter for your excellent journal, and would be greedily read by your humble servant.

EDITORIAL NOTES.

THE FLAT-HEADED BORER.—This is very destructive to apple trees in Ohio. Mr. Robert Steele thus characterizes it in a paper before the Montgomery County, Ohio, Horticultural Society: "The pupa, like the worm, is white, but the beetle is of a bronze color. This beetle deposits its eggs generally on rough places, but sometimes on smooth, healthy bark. It is diurnal in its habits, and begins to make its appearance in May, continuing to deposit eggs through the whole summer. They soon hatch, are found in clusters of about a dozen, are about one-tenth of an inch in length at first, but soon grow to be a quarter of an inch long. About the middle of August they change into the pupa state; by September the beetles are well formed, and ready to leave the tree, probably to hibernate under ground."

PEACH CULTURE.—A capital speech on peach culture was made by T. J. Sanderson, in March last, before the Grange at Marlboro, Mass. Mr. S. asserts the worst disease the peach is liable to is ignorance. The peach often produces enormously the first year. If allowed to perfect all it wants to, it is likely to be of use to you no more forever. It loves to have all its unthrifty wood cut out, and to have a liberal supply of nourishing food.

FRENCH FRUITS IN ENGLAND.—England is the great foreign market for French fruits. According to M. Joly, the exports from France during 1881, were 21,713,406 kilogrammes, and of this amount 18,039,072 went to England, the rest being distributed through Belgium, Germany, Switzerland, and others.

IMPERFECT FLOWERING GRAPES.—It is well known that the grape has a tendency towards dioecism—that is to say, to have the male and female flowers on separate plants. This is true of the foreign grape as well as of the native grape; but more particularly of the latter. Under culture, the Creveling is well known to

have very often flowers approaching the purely female condition, that is with perfect pistils, but with defective stamens. Prof. Budd finds the same defect sometimes in some of the Rogers varieties.

ORANGES IN EUROPE.—M. Charles Joly, of Paris, in a recent paper on the exports and imports of fruits in France, gives the enormous quantity of 37,168,909 kilogrammes as the importation from Spain alone during 1881. This, as the consumption of one country alone, shows the great importance of the orange crop to Spain.

OSAGE ORANGE SILK.—Prof. C. V. Riley called attention some time since to the fact that the common silk worm would do as well on osage orange leaves as on mulberry. Last year the Women's Silk Culture Association, of Philadelphia, had silk from osage-fed worms sent to Itschner's factory. It was returned in the shape of a silk ribbon to the ladies with the following letter: "We send you twenty yards of ribbon made from the silk raised on Osage Orange leaves, handed to us during your late exhibition. We see no difference in the dye or weaving from other silk."

PEAR, B. S. FOX.—Fruit of this, tested by Mr. Barry in April, indicates that it will be as grand a winter pear in the East as it proved to be in California, where it originated.

COCHIN CHINA GRAPE.—This is attracting much attention in Europe. Like the *Vitis incisa* of our Southern States, it has tuberous roots—but that is rather a *Cissus*—while this appears to be a true grape, though the botanical name is not given. It is believed in France, where it was first introduced by M. Martin, government gardener at Saignon, that it will be proof against *Phylloxera*, and naturally is exciting much interest on this account. Good wine has been made from it.

THE POCKLINGTON GRAPE.—Mr. Samuel Miller, the raiser of Martha, believes his variety will be superseded by the Pocklington.

WINTER NELIS PEAR.—Chas. A. Green finds that this does not succeed farther East than Rochester.

PEACH FLOWERS.—There is a large flowered and a small flowered class of peaches. Mr. Raphael Sherfey makes the important discovery that the large flowered kinds get through the

early spring frosts better than the small flowered kinds. "The more is the pity," says friend Edwin Satterthwaite, for "all the good peaches are among the small flowerers."

PRESERVING SPANISH GRAPES.—These grapes, which come to market in such a pretty unshrivelled condition, and with so little taste, the *Garden* believes are gathered before fully ripe.

PEA STICKS.—Some peas need no sticks to climb on, but the largest crops are from those which need sticks. Experiments made with the same kind of peas show a much larger product from those which have sticks to climb on. Twiggy sticks must be used, as the tendril cannot clasp a club. Good gardeners use stout branches if they can get them, but pluck off the upper twigs and stick them in between the stout branches at the ground. This helps the young plant up to where all the light twigs are.

FULL PODDED PEAS.—Drawings in European catalogues exhibit peas fourteen in a pod. Did any one see in this country that many in a pod, in either an old or a new variety?

PRESIDENT GARFIELD PEA.—This is said to be the latest improvement in English peas, and to be well worthy of its name.

SCRAPS AND QUERIES.

JUGLANS PRÆPARTURIENS.—A California correspondent submits the following questions, which, not being well versed in the history of this particular variety, we should be glad if some correspondent can answer:

1. How large does the English Dwarf Prolific (*Præparturiens*) grow? that is, how many feet in height, and how many inches in diameter at the butt?

2. Have you on your place any such trees? If so, how old and how big are they? How do they bear? How hardy are they?

3. Who did originate the Dwarf Prolific Walnut (*Præparturiens*)?

4. At what age do the trees bear?

5. How large is the nut?

6. Did you ever hear of Andre Leroy Standard *Præparturiens* (*Juglans præparturiens* or Fertile) Walnut?

DISEASE IN PEAR AND APPLE TREES.—"C. W. T.," Hulmeville, Pa., writes: "I was yesterday looking through a very fine orchard in this vicinity

when my attention was called to a row of Seckel Pear trees, some twenty-five of which had been much injured and a number of them killed under circumstances different, I think, from any I ever met with before. I should like to have your views as to the cause. Just a year ago the owner of these trees discovered patches of bark on their trunks turning black. These were nearly always on the north side of the trees, and were from a few inches in extent up to a length of two or three feet, and extending entirely around the trees. In the course of the season, these patches dried up and peeled off, leaving the wood beneath perfectly sound and white, not discolored in the least. The trees are some three or more inches in diameter, and fifteen or sixteen feet high. The soil is light sandy loam, has been well manured and planted with hoed crops, and kept well worked. There were no pear trees injured but Seckel, with the exception of one 'Howel,' which was affected in the same way. I will remark here, that sandy soil in this vicinity does not seem to suit the Lawrence Pear. A row of these in this same orchard, did so very poorly, that they had to be taken up and replanted in heavier soil, where they have since done well. I could suggest no other treatment for the injured trees than painting over the bare places and discontinuing the manure. The trees are of remarkably vigorous growth, and where they are not entirely girdled, nature is making a strenuous effort to cover the wounds with new bark.

"A fine young apple orchard near this first, and containing 1,500 trees, is also badly diseased, but in a different way. The trees are old enough to bear a bushel each, but will have no fruit on them this season. Last August the branches began to die, commencing at the extremities and turning black as the disease extended down. There were no insects noticed on the trees, but on examining the bark of the affected branches, it appeared to be covered with minute punctures, invisible to the naked eye. The soil here also has been heavily manured, planted with corn and tobacco and kept well worked. The refuse stems of the tobacco have been heaped up around the butts of the trees to keep off the borer. The owner is just beginning to head in his trees, which is all the treatment they have received as yet. I suppose high feeding is at the bottom of the trouble."

[The bark disease referred to is not uncommon in the pear, though not referred to in any

of our fruit books. It is of fungus origin. It is rarely troublesome in those orchards which have the trunks regularly lime-washed once a year.

There are two kinds of apple disease, which have effects such as you describe, one done by a small insect (*Tomicus pyri*), the other from a fungus attack. In either case cutting and burning the diseased parts, before there has been time to mature eggs or spores for another crop, is the only remedy we have ever known suggested.

As to high feeding, injury from this cause among fruit trees, is purely mythical. A tree already half sick from bad treatment, though this may pass under the name of good culture, may become past all recovery by plenty of good food; but for an Apple, Pear, Cherry, Peach, Plum, or similar tree, you may pile on the manure six inches thick under a healthy tree without disgusting it. Of course, if you use salt, or some of the chemical combinations so often recommended in the place of good, old-fashioned manure, and natural plant food, you may expect trouble; but this is no more to be called the results of high feeding than if a man expires from an overdose of laudanum.—Ed. G. M.]

A NATIVE APPLE.—An Ohio correspondent says: "In Hooper's Western Fruit Book, page 337 (No. 27), it says, 'Probably a native fruit.' Is there a Crab Apple under cultivation of native origin (variety of *Pyrus coronaria*)?"

[It is generally believed that Hewes' Virginia Crab is a variety of *Pyrus coronaria*, the only indigenous species of apple that we have. But this is doubtful. We should be inclined to decide that there is no variety of the true American apple under culture.—Ed. G. M.]

STRONG'S METHOD OF GRAFTING.—A Bucks Co., Pa., correspondent says: "The 'Strong' method of grafting is at hand just in time for trial this season. I think with the editor that it is a very strong method indeed. That it has never been used before is very problematical, but should it have been discovered fifty times, none the less credit is due the present inventor. Such things sometimes remain dormant for a long time before they come to the surface. Here is a case in point. I have some screws in my possession, common wood screws, that I can trace back to about forty-three or forty-four years. They are of Chinese make and are gimlet-pointed. It is not at all unlikely that the pattern has been in

use in China for 1,000 years, perhaps much longer, and yet how many millions have been made in the United States alone, on the patents taken out for that invention, say within the last thirty years or thereabout?

"I have seen no account yet of damage done

by the late frost on the 1st, 2d and 3rd of May. It was quite heavy here. At sunrise the ground was white, and ice one-eighth of an inch on the 3d. Cherries were only in full blossom yesterday (5th). I think I have known them out more than a month earlier."

FORESTRY.

COMMUNICATIONS.

FORESTRY NOTES,

BY F. L. OLMSTED, BROOKLINE, MASS.

I hope that your May editorial notes on forestry and forest growth may be followed up. As to effect of forests on water supply, it is in question that the removal of forests increases the variability of streams that have risen in them? I suppose it is generally admitted that in American experience the average supply, taking periods of ten years, is not diminished or increased.

As to comparative rates of growth in England and America, I have had a chance to observe plantations of equal age from time to time for twenty years past in both countries, and without making exact measurements or a close analysis of conditions, my impression is that in like soils more trees, and especially European trees, grow more rapidly on this side of the Atlantic. This impression connects itself with another, which I find not to be uncommon, that the natural life of certain trees of the West of Europe, Conifers more especially, is shorter here than there. Of the Norway Spruces and Scotch Pines set out from the nursery more than twenty years ago, and which I have seen when eight or ten years old growing luxuriantly, it appears to me that of those still living, few are not now dwindling as if prematurely old. In some cases, I have suspected them to be enfeebled by overbearing, and it would be interesting to ascertain whether these and other European trees do not produce larger crops of seed at an earlier age with us than in their indigenous climate.

There are now in our country so many well-equipped observers who had been students of trees before they came here, and they are so generally in correspondence with intelligent ob-

servers abroad, that an invitation from you might draw out some facts of value on this topic.

[It is a great pleasure to have the views of the GARDENER'S MONTHLY endorsed by so eminent and so careful an observer as Mr. Olmsted; and it will give great pleasure to the editor and to many readers, if other intelligent correspondents will furnish the additional observations as suggested by the last paragraph of Mr. Olmsted's note.

As to the diminished quantity of water in streams and springs, as an actual result of cutting away the forests, this is a question in not merely some, but a great many quarters. It has been our province to show that the forests have nothing whatever to do with springs or streams, except in so far as they may serve in mountain sides to obstruct the flow of surface water to the low lands, and force it to sink down into the strata along which the under-ground rivers flow. Not so many years ago, when the matter was broached in the American Association, on the motion of Dr. Franklin B. Hough, the writer of this took exception to the views entertained there, and went over the meteorological tables kept by the United States authorities, and published them, with other facts, in the *New York Tribune*. Dr. Hough noted these papers, but in his collection of items for his "Reports upon Forestry," published by the United States Government, these collated facts were not thought worthy of a place, while every point bearing on the opposite views has been carefully noted. We regret this persistency in one-sided evidence, because forestry is a question which above all others requires exact facts, whatever they may be. In the *Tribune* papers the evidence that forests are a result instead of a cause of meteorological conditions was certainly suggestive.—Ed. G. M.]

EDITORIAL NOTES.

SEEDLING FOREST TREES.—Major Ben. Perley Poore thinks the government should issue instructions to ignoramuses how to sow forest tree seeds, so that they may be spared the results of their ignorance in bad planting. He says:

"The writers on forestry all begin by recommending the purchase of tree-plant from the nursery, and it is an undoubted fact that not one-quarter of the tree-plants so purchased ever grow into trees with butts as big as a hoe-handle. I know, myself, a gentleman who owns one of the finest farms in New England, who has purchased, and had carefully planted, upwards of 60,000 young trees, and who admits that he cannot show, as the result of his sixteen years of experiment, 100 thrifty forest trees."

It seems to us that ignorance is ignorance whether in seed-sowing or seed-planting, and we do not see why the ignoramus in tree seed-sowing should be more entitled to national sympathy and government cash, than the ignoramus in tree-planting. By the way, who is this New England gentleman who has thus sacrificed 59,900 trees to get less than 100 good ones? His careful planting and after management would no doubt form one of the most instructive chapters in American forestry.

LEGISLATIVE FORESTRY.—It would be an interesting but curious subject of study to find out who it is that gets up the forestry legislation which takes place in so many States every year, and which is remarkable for nothing but sheer impracticability, or worse. Massachusetts is now trying its hand. The proposal before the Legislature is "to empower towns to take tracts of land of suitable character, within their limits, on the payment of a fair price, and to plant them over with forest trees; no tract thus planted to be less than five hundred acres, and the State is asked to remit taxes on the same."

Mr. C. M. Hovey makes some sensible comments on this in the Massachusetts *Ploughman*. Such a scheme by towns, he well remarks, means a new army of office-holders to oversee and inspect these forests. He thinks, as will most reflecting persons, that the same object could be accomplished at half the cost, by encouraging private enterprise, as by encouraging "towns."

CULTIVATING FOREST TREES.—It must not be forgotten that the growth of forest trees left to struggle as they may, and perhaps with poor soil amongst other evils, affords no sort of guide

as to the rapidity of growth, and time of coming into profit, which well cared for trees exhibit. In many cases there are sources of profit outside of the mere timber in trees. A correspondent of the Canadian *Weekly Star* makes a good point of this: "A grove of large chestnut trees, with about forty trees to the acre, has paid about \$120 yearly per acre, for many years, from the fruit alone, which usually sells at \$3 a bushel, while trees so grown yield much larger crops than the wild trees."

TREE PLANTING IN AUSTRALIA.—The Colony of South Australia encourages forestry in various ways, even to the extent of giving the trees to the planters. Before us we have a list of trees on hand in the government nurseries, published by the Forest Board at Adelaide, for the season of 1882-3. We note that of the trees of our country, there is some demand for White Ash, Catalpa, Yellow Locust, which they seem to know only as False Acacia, and the *Pinus insignis* of California. The most popular tree is their own Blue Gum, *Eucalyptus globulus*. Of these they have 162,000 young plants. There are of Red Gum, *Eucalyptus rostrata*, 123,000; and of Sugar Gum, *E. corynocalyx*, 109,000. Other of the numerous species do not seem popular, as of all kinds there are only 10,000 plants. *Pinus insignis* is the next largest in stock, near 9,000. The Aleppo Pine and the Carob tree are also in good demand. By the look of the list we should judge that there must be many trees of value to Australia yet to be introduced from other countries.

FOREST GROWTH IN AMERICA.—Mr. Fay planted a forest on the poor sands of Cape Cod, the land not worth fifty cents per acre. Scotch pines, sown as late as 1861, were thirty feet high, and ten inches in diameter a foot from the ground. With such admirable results in the most unlikely place, what may we not look for when American forestry is reduced to a science.

FOREST FIRES.—The reader, no doubt, often meets with paragraphs like this one, which we take from the daily papers of May 3d:

"On Tuesday sparks from a locomotive set fire to the scrub oaks at Aquebogue, Suffolk County, L. I., and ten acres of timber land belonging to Edgar E. Wells were destroyed. Another fire near Yaphank burned over eleven miles of land. At Brookhaven, Joshua Carman's barn and dwelling-house and the residence of Joshua Glover were burned to the ground. After midnight the wind arose, and the fire

started with renewed vigor, threatening the village of Bellport. The church bells were rung, and the inhabitants turned out and fought the flames until daylight, when they succeeded in subduing them. Early to-day a fire started south of the Long Island Railroad, between Bartlett's Station and Yaphank, and burned rapidly toward Carman's River."

The paragraph is reprinted here in order to emphasize the point often made in this magazine, that no one should be allowed to maintain acres of dead underbrush to the endangering of thousands of dollars worth of other people's property. So far as railroads are concerned, they should certainly be held to great care; but on the other hand, the owners of property should also contribute their share of caution. The wood's underbrush, or even the timber and all, should be cleared for a hundred feet at least from the line along all railroads. The man who allowed gunpowder to lie around loose would be thought as culpable as the man who walked over the powder-strewn path with a cigar in his mouth.

VALUE OF THE AILANTHUS TIMBER.—A Canadian paper has the following:

"The Ailanthus is another valuable timber tree which is easily grown. The timber is very durable, and is especially valuable for railroad ties, as it holds a spike with great tenacity and bears a great strain without crushing."

Can any of our readers tell us on what railroad this has been tried, and just exactly all about it? It is very important in cases of forestry where, if a man make a mistake in planting, it cannot be remedied to his benefit, every statement should be well authenticated.

POLYGONUM AMPHIBIUM FOR TANNING.—Some years since we noted that this plant has good tanning properties. The *Kansas City Science Review* says that gentlemen of that city are prepared to put the discovery into practical operation. It is said to have three times the amount of tannin than an equal weight of oak or hemlock has. One advantage will be that the destruction of forests will not interfere with the supply.

AN OLD WHITE PINE.—A tree of remarkable dimensions was felled recently a Crystal Spring, Yates County, New York. The tree was perfectly sound and vigorous, thirteen feet in circumference at the ground, and nearly two hundred feet in height. The "rings" on its stump indicate an age of three hundred and fifteen years,

and it is estimated that 4,000 feet of lumber will be cut from its trunk.

MICHIGAN FORESTS.—According to Wheeler and Smith's catalogue, "the annual production of pine lumber in Michigan, for the last decade, has exceeded 2,000,000,000 feet. Yet, in spite of this enormous consumption, it is safe to say that Michigan still contains more valuable pine than any like area in North America. The lumber interest alone enriches the State something like \$40,000,000 a year."

SCRAPS AND QUERIES.

NOTES FROM WAUKEGAN, ILL.—R. Douglas & Sons write: "Your experience with Yellow Pine corresponds with ours. We have purchased seeds of Yellow Pine time and again, and found them turn out *P. rigida*; indeed we have now for the first time true Yellow Pine, *P. mitis*, two and three years old.

"We have been fortunate in that we always found out before sending out the trees, so that we have never sent out *rigida* for Yellow Pine.

"It seems to me that some one of you botanists might be smart enough to find distinguishing features in the Red Spruce to make of it a distinct species. The cone and even the seeds are different from either the black or the white. The tree differs in form and color from either of the others; even the odor of the bruised young twigs, I fancy differs from the others, and last, but not least, it reproduces itself from seed every time, so as to be very readily distinguished from either of the others, even when in the seed bed.

"If only a variety of the Black Spruce, one would suppose that they would mix so as to show all grades between the red and black, but this is not so. The red and black differ in appearance much more than the white and the black; indeed half the nurserymen do not know the white from the black without the cones, but any one can see the difference between the red and either of the others."

SIZE OF HONEY LOCUST.—An Ohio correspondent asks: "How large does the Honey Locust grow? I saw two trees a few days ago in a river bottom in Hardin Co., O., over twenty inches in diameter, and thought they were the largest I had ever seen."

[This is very well, but it is but an average growth for Pennsylvania. Without having the

exact figures to hand, cases are surely known exceeding this.—Ed. G. M.]

CATALPA AT BEAVER DAM, WISCONSIN.—Mr. Perry writes as follows: "The old Catalpa tree" is probably *C. bignonioides*. "Catalpa speciosa" planted two years ago made rampant growth last year—four to five feet. A little tip of unripe wood, two to three inches killed, wood bright and full of sap from the first fully developed bud.

To my mind it is hardier than the Golden Russet Apple trees. I think you can safely say it is hardy south of 44° or 45°. My old Catalpa bore a few seed pods last year. I picked them off Saturday, 26th. They were from six to sixteen inches long, and contained a winged wafer-like seed; find a few enclosed. I never saw the fruit or seed of a Catalpa before this, so cannot tell whether they are perfect or not."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

NOTE ON THE BUZZARD.

BY W. H. BURFORD, INDEPENDENCE, MISS.

An old vulture, or turkey buzzard, occupied the same nest for twenty years. In a certain piece of woodland, on a farm now belonging to the writer, is a buzzard's nest, formerly in a hollow tree, but the tree was felled several years ago, and the buzzard still occupies the same nest in the stump.

The former owner of the land informed me, four years ago, that a buzzard had laid and reared her young in that stump for sixteen years in succession, and to my certain knowledge one has done so for this the fourth year since, making twenty years in all. She is now sitting on two eggs, which is the number always laid by this species. The eggs are about the size and shape of the common turkey hen's egg, only a little longer and more pointed, ground pure white, with large, irregular splashes or spots of dark red. They usually, if not always, hatch, and are reared by the old one. While in their infant state they are covered with a pure white down, which is afterward replaced by black feathers, and when all the down has disappeared the bird is able to fly.

[While the editor was in the mountains of Tennessee last year, the conversation with the guide turned on the habits of the buzzard, who said also that they built on the ground in the cover of the high rocks in the same place year

after year. As snakes were said to abound, we asked, "Do not the snakes trouble the eggs or young?" "Dey doesn't want 'em, sah." "Why not?" "Dey smell too strong." "How do they smell?" "Did yah eber smell a pup when he cum out ob de water?" And then our colored friend put on a smile such as those only can who feel satisfied that they have completely nonplussed the questioner.—Ed. G. M.]

SOUTH CAROLINA WILD FLOWERS.

BY A CHARLESTON LADY.

Your "Wild Flower" correspondent in the May number of your magazine, speaks of the facility with which the Blood root (*Sanguinaria Canadensis*) may be grown in a garden.

Three or four years ago we brought in a good number of roots from a beech wood in our neighborhood. They were planted in two wide shallow wooden boxes, the bottoms of which were perforated for drainage and sunk in a border. Every Spring since, we have a most luxuriant bloom of these pretty flowers, and at a time when flowers are rare and valued. They always excite the admiration of our visitors, many of whom have perhaps never before seen a blood-root.

A bed of wild pink *Phlox* has succeeded admirably, being a mass of bloom long before the *Phlox Drummondii* puts in an appearance.

The Cactus known to us as Prickly Pear, and which we find on any sandy barren, forms a handsome clump in my garden. Its bright yellow cups are like finest silk, succeeded in the

autumn by its red fruit which lasts with us through the winter.

I do not know whether it is commonly known that the prickly succulent leaf is an unfailing cure for a felon or whitlow. The leaf is carefully scraped, and the spongy, juicy part beaten up with a silver fork till it becomes light and soft. This is used as a poultice, and I have never seen it fail to relieve the sufferer.

The Scarlet Woodbine of our woods makes a glorious show on some tall cedar posts up which they run; forming at the top umbrella shaped heads from which again hang long festoons of blossom.

Our Bignonias (cross vine) improve by cultivation. Running along the eaves of our cottage the great leaves and large scarlet blossoms are very elegant. A straw-colored one has bloomed for the first time since brought into the garden. There is a wild Smilax here which growing up a building, is far more graceful in its habit than the one you value in your greenhouses. At first the growth is depressingly slow, and we almost despaired of our vine; but now our Smilax has repaid us for our patience, and its branches and grows more rapidly than the Ivy. Its shining, dark-green leaves, summer and winter, are more cheerful than I can describe.

The Styx have quite recovered their removal from the damp vicinity of their native swamps. My trees have bloomed profusely, and their pleasant fragrance and pretty star-like flowers ought to make them better known among American botanists.

Some two or three years ago I chanced on a wild pepper (*Solanum*), growing just outside our garden fence. I dug it up and planted it in a similar spot under the shade of our magnificent Live Oaks. Now, I have more than I need, for they seed and come up every spring. The flower is small, but the berries are bright and showy, even after frost has wilted the Chrysanthemums.

I must mention, before I close this paper, a small tree I have succeeded in domesticating. It is one of the numerous varieties of Whortleberry (*Huckleberry*, as we call them,) or Sparkleberry, perhaps a *Vaccinium*. The tree, or shrub is from ten to thirty feet high. Bears its myriads of snowy flowers exactly resembling in shape and size the Lily of the Valley—without a single leaf. You are startled by a white mass in the woods, and on approaching it, are enchanted with the exquisite, delicate, dangling

beauty of the plant. When the flowers commence to fall, the round, tiny, shining leaves appear; and when the first frost comes, the tree is crimson, its brilliant foliage lasting a considerable time. My little tree is now covered with berries which are not edible.

AGENCY OF WATER IN CHANGING THE CHARACTER OF FORESTS.

BY PROF. P. W. SHEAFER, POTTSVILLE, PA.

We find that water rather than fire is the most destructive element in obliterating our forests. In a new valley among our mountains, a beaver dam obstructed the flow of a stream and made a large swamp or meadow quite surrounded with a dense growth of pine and hemlock. When the same creek was again dammed back by coal dirt, it ruined quite a large area of large timber; the same thing occurred on a branch of the Swatara as well as the above instances on the Mahoney. We find when the fires destroy our forests we soon have a new growth of a different species of trees, but none where water destroys the forest. May not the same element have caused the treeless prairies? We are much interested in your treatment of this question, as we need tree planting in the coal regions, more, perhaps than in any portion of the United States, or else how can we find cheap support for the roof and roads in the mines, if we have not wooden props, especially pitch pine, (*Pinus rigida*) our favorite tree for strength and durability.

EDITORIAL NOTES.

DR. PARRY.—This botanist to whom we already owe so many new discoveries in our country, has just returned from another expedition, and with some more novelties as we are informed.

EARLY BIRDS WHICH DID NOT FIND THE WORM.—Under date of April 13th, a correspondent from Washoe Co., Nevada, says "Our season is peculiar. We thought our spring was come, and the spring birds were of the same opinion. They had scarcely arrived before a deep fall of snow caught us. It was a pity to see the poor things as they flew against the windows as if begging protection. Some orioles, meadow larks and others we let in, and tried to save, but they all died."

It is remarkable how readily birds die under strange conditions. The Editor was once riding

on the cow-catcher of a locomotive of the Union Pacific Railroad, soon after it was opened, and perhaps before the birds had been used to the locomotive. For some reason the meadow larks seemed to endeavor to fly a race with the engine, trying to keep just ahead. The engine went faster than the birds flew, and as we overtook them, many were caught in a soft hat. They all seemed entirely dead on the instant of being caught. In order to be satisfied that it was not from the actual force, the hat would be drawn back on the instant of contact, in a manner well known to those experienced in ball-catching. Death evidently resulted from nervous shock. During the past winter chipping sparrows were caught in rabbit traps by the editor's boys. Instead of turning them out again into the dreary snow field, they were put into cages. Though they ate freely, and seemed glad to appease their hunger, they died in a few days.

THE BOTANIC GARDENS AT MELBOURNE.—Victoria is the smallest of the Australian Colonies, but a very progressive one. The beautiful botanic garden at Melbourne is regarded as one of its greatest attractions. It comprises eighty-three acres. In its early history it was devoted chiefly to botanical work, and made for itself a famous name in this connection all over the world. In later times horticultural features have been added, which make the gardens especially popular with the Melbourne people.

In a recent account we note that they use in this garden as a lawn grass, *Stenotaphrum glabrum*, which they call "Buffalo grass," and praise it highly. It makes dense masses of grass which do not dry out in the hottest weather. This would not thrive above the frost line, but it might be very valuable in the Southern States. The United States Department of Agriculture had recently much criticism bestowed on it, because it distributed these seeds as "the Buffalo grass;" Buffalo grass in America being *Buchloe dactyloides*. But it is merely another case of trouble from the reckless coining of popular names. If General Le Duc had put "of Australia" after Buffalo grass he would have saved his skin from the lash of the critics. That excellent Botanist, Baron Von Mueller, has charge of the Botanical Museum at Melbourne; Mr. Guilfoyle is Director of the garden.

THE ANNUAL CIRCLES OF WOOD IN A TREE.—Among the curious papers read at Cincinnati, was one suggesting that the examination of the

transverse sections in a felled tree would show when the seasons in the past were dry seasons, and when wet ones—thin layers indicating the dry, and wide layers of wood indicating the wet ones. It seems scarcely probable that in these days of scientific knowledge, any one assuming to write papers relating to plant life, should not know that the thickness of a layer of wood at the point where we happen to cut it across, is no indication of the thickness at a little distance above or below the cut. But these papers show how slow some people are to keep up with what is known. A circle but a sixteenth of an inch wide, may be one-eighth, or even one quarter of an inch, but a very few feet in a direct line above or below the first cut.

Wood is made by the development of cells from the cells of last year, and the production of cells is just in proportion to the amount of food at command, or the ability of the germinating cells to make use of food. A branch cut away, or a new branch starting near a certain mass of cells, will make them grow slower or faster than those above or below this. An extra pinch of cold may make perhaps a square foot of cells weaker than some above or below; or a burst of sun in winter happening to concentrate on one small spot, will weaken though not kill the cells, and then they will make but a poor cell growth just there the next season. Any one, in fact, who chooses to look at the nearest Cedar, Apple, Hornbeam, or in fact the trunk of any growing tree, must see the irregularity of outline from this cause, and if he will saw through a trunk at half a dozen places, he will be surprised to find, very often, that the very same ring which at six feet indicated a very dry season, at eight or nine feet proved the same season to be a very wet one!

HYBRID ORCHIDS.—Once there prevailed an impression that orchid seeds never grew. They seem to produce seeds freely enough. If we examine a patch of native orchids, it is rarely that we do not find abundance of capsules with many thousands of the dust-like seeds in each. But it is only occasionally that we see evidences of seedling growth about the old plants. Indeed it is a notorious fact that a native locality can soon be destroyed by the continual digging up of the flowering roots. No young ones come on to take their places. In the vicinity of Philadelphia, and of all populous places, numbers of orchid localities have been destroyed through the roots being dug up by plant lovers.

It seems to have been left for a few skillful plant growers to discover, that the orchid conditions do not often occur in a state of nature now, whatever they may have done in ages long



CHYSIS CHELSONII.

quires a very nice conjunction of circumstances since past. Under culture, the intelligent cultivator can control these conditions. Mr. Dominy

the aged propagator of Messrs. Veitch, had no difficulty in making orchid seed grow. This knowledge gained, hybridization naturally suggested itself and great numbers of very beautiful forms have been originated by him in this way. Messrs. Veitch continue to bring out beautiful novelties that have been raised in this manner. The one we now illustrate is one of these. It was raised at their nursery from *Chysis bractescens* and *C. aurea*. The flowers are large and of elegant form; the color of the sepals and petals are nankeen yellow with a large rosy blotch towards the apex; the lip is bright yellow, with numerous purplish red spots and markings. The plant grows freely with a habit intermediate between that of the two parents.

THE SEASONS IN AMERICA AND ENGLAND.—A letter from the County of Kent in England, May 1st, says the Hawthorn was then beautifully in blossom, and the weather was beautifully fine. Here in Philadelphia we have English weather, though an English traveller just in our office repudiates such an execrable suggestion, Drizzly rain for about two weeks and thermometer not over 50°.

The Hawthorn under our window as we write (May 14th) looks as if it will not open by midsummer, and the lilacs always open on the first of May, are closed yet.

BOTANY IN THE FRENCH CAPITAL.—We are sorry to learn from a French correspondent that botany is not as strongly encouraged as it once was. A naturalist was appointed with the French expedition to Mexico to sustain Maximilian, and it was one of the incidents which made an objectionable movement tolerable in some quarters, that at least science would be gainers. But the plants collected on that expedition are yet in unopened bundles at the Jardin des Plantes, and an eminent botanist, like Baillon, writing a history of plants, has to go to Kew to study kinds, probably already at his elbow in Paris, but wholly inaccessible.

Our correspondent intimates that this shows that republics are not as favorably disposed towards science as are monarchies; but fortunately, the experience of the United States shows that this is not necessarily the case. Some of the best botanical work the world has ever seen has been done by the American Government in connection with the national surveys and expeditions. It is the men who happen to rule, not the systems which decide these things.

AMERICAN SIGHTS WORTH SEEING.—A correspondent of the London *Garden* writes that of all the grand objects he saw in America during his visit to the great Centennial Exhibition in Philadelphia, those which impressed him the most permanently, were Niagara Falls; a certain sunset effect on a river with floating masses of dazzling white snow on it when the water seemed the color of the brilliantly red sky which was reflected in it; and the huge trees of *Magnolia conspicua* with their thousands of large white blossoms, which are not uncommon about Philadelphia.

HARD BOTANICAL NAMES.—The wretched names offered us so often as "English names," are no worse, to say the least, than some of the very hard words given to us by botanists, and all horticulturists are pleased when a really pretty "common" name becomes common enough to use. The "widow's night cap," or the "red hot poker plant," may be meaningless or unwieldy; but even they are merciful compared with some of the terrific things with which simple garden folks have often to deal. Let us hope to be preserved from all these extremes. A good botanist, the late Dr. Lindley, pointedly puts the case in the preface to the *Vegetable Kingdom* (edition 1853):

"Since the days of Linnæus, who was the great reformer of scientific nomenclature, a host of strange names, inharmonious, sesquipedalian, or barbarous, have found their way into botany, and by the stern, but almost indispensable, laws of priority are retained there. It is full time, indeed, that some stop should be put to this torrent of savage sounds, when we find such words as *Calucechinus*, *Oresigenesa*, *Finaustrina*, *Krascheminikovia*, *Gravenhorstia*, *Andrzejofskya*, *Mielichoferia*, *Monanctineirma*, *Pleuroschismatypus*, and hundreds of others like them, thrust into the records of botany without even an apology. If such intolerable words are to be used they should surely be reserved for plants as repulsive as themselves, and instead of libelling races so fair as flowers, or so noble as trees, they ought to be confined to slimes, mildews, blights, and toadstools. All should be anxious to do something towards alleviating this grievous evil, which, at least, need not be permitted to eat into the healthy form of botany clothed in the English language. No one who has had experience in the progress of botany as a science can doubt that it has been more impeded in this country by the repulsive appearance of the names which it employs than by any other cause whatever, and that in fact this has proved an invincible obstacle to its becoming the serious occupation of those who are unacquainted with the learned languages, or who, being acquainted with them,

are fastidious about euphony and Greek or Latin purity. So strongly have we become impressed with the truth of this view, that on several occasions we have endeavored to substitute English names for the Latin or Greek compounds by which the genera of plants are distinguished. Upon turning over the later volumes of the *Botanical Register* many such instances will be found in imitation of the usual English words Hound's-tongue, Loosestrife, Bugloss, Soapwort, or Harebell, &c. . . . If such English names are not universally adopted, it is to be suspected the circumstance is traceable to the indifference of the public to partial and inconsiderable changes, which are unseen in the ocean of botanical nomenclature. That they are important must be admitted; that the person most careless as to the difficulties of articulation would prefer to speak of a Fringe Myrtle rather than of a *Chamælaucium*, or of a Gritberry than of *Comarostaphylis*, will probably be allowed on all hands; and therefore we do not confess discouragement or failure, but would rather invite suggestions as to the more probable means of success where translation is neither necessary nor desirable in all cases. Many Latin names have from custom been adopted into the English language, and no wisdom would be shown in attempting to alter such words as *Dahlia*, *Crocus*, *Ixia*, or even *Orchis*."

SCRAPS AND QUERIES.

SCARLET FLOWERS FROM A WHITE GERANIUM.—"J. H. C., Strathroy, Ontario, writes: "Enclosed you will find a photograph of the geranium *White Vesuvius*, grown in my greenhouse, giving a sprout from the main stem, and producing a perfect head of bright scarlet flowers, thus giving on the same plant a truss of pure white and scarlet flowers on the one plant; showing a strange, and may be uncommon, occurrence in the general culture or reproduction of nature; showing as Mr. Cannell, of Swanley, Kent, England says, the *White Vesuvius* was a sport of the *Scarlet Vesuvius*, which in this case has returned back to its original."

[These cases are not uncommon, but no one has been able to tell how the change is brought about. Chemical science can tell us how to make colors in dead matter, but in living things the law of color is not known. Simply that it is a case of reversion is all that can be said.—Ed. G. M.]

GROWTH OF WOOD.—A Bay City, Mich., correspondent kindly sends the following interesting scrap from a local paper:

"There is on exhibition at J. C. Zeigler's jew-

elry store a rare curiosity and strong proof of the healing nature in preserving vegetable life. It is a specimen from an oak tree, from two to three inches thick, and originally about eleven inches wide, extending from past the centre to the circumference. Seven inches and a-half from the outside, in being split off, reveals the scar of a woodman's axe, which penetrated almost to the heart of the then sapling. There are two or three distinct scars, and on the growth that covered them up are the fac-similes of the scars in relief. Of the solid new wood there seems to have been 101 years growth indicated by the rings, while there is proof that several years were consumed in healing up the scar sufficiently to show a distinct ring afterwards. The new growth is seven and a-half inches thick, and on the outside is seen the mark of last year's fire. Between the tenth and eleventh ring farther in is a trace of the fires of 1871. Sixteen years farther back is another proof that the oak overcame the flames, and still twenty circles nearer the heart is another, and thus the features of the year are written in the wood. The piece came from a tree which Mr. Gould, formerly of this city, now of Beaver Creek, Gratiot county, was cutting into staves. What axe made the scar so distinctly revealed, and who was the man who swung it, and what was he in search of in the wilderness, are questions for the imagination. It was an axe and not a tomahawk that left its trace, and was probably in the hands of a white man, who perhaps wanted to develop Gratiot county 120 years ago."

[It must be remembered that all the interior part of a tree is dead matter, and not capable of healing a wound. Only the last layer of wood-cells beneath the bark of last year is capable of making more cells from which new wood is made. These may make new wood in time, to cover a hole or wound, but not repair damages. The only growth that ever occurs in the interior of a tree is from the layer adjoining the pith. An *Ailanthus* or a *Paulownia* with a pith cavity an inch wide, will often be found to have closed to a quarter of an inch or less in an aged tree. Prof. J. T. Rothrock, the learned botanist of the Pennsylvania University, in a recent address, gave it as his opinion, that wood cells could be formed from those in the interior, adjoining the pith, for several or perhaps many successive years.—Ed. G. M.]

YELLOW CHOKE CHERRY.—The editor of the *Le Journal d'Agriculture Illustré*, of Montreal, kindly furnishes the following note:

"I have seen Yellow Choke Cherries several times in the Province of Quebec. The 'Cerise à grappe' is very common here, and some of the fruit, when dead-ripe, is by no means to be despised."

LITERATURE, TRAVELS AND PERSONAL NOTES.

EDITORIAL NOTES.

JAMES VICK.—As we go to press, the telegraph brings news of the death of this distinguished horticulturist in Rochester, on Tuesday, May 16th, in his sixty-fourth year. The immense influence he has exercised on the great progress of American horticulture is too well known to need any more than a passing note at this time.

We make room for the following from a correspondent:

"James Vick is dead! Sadder words than these my pen could not utter. Wherever a flower is grown, in this broad land, there will be hearts touched with sorrow at this mournful news. In more than a quarter of a million gardens, there will be, this summer, monuments of flowers to remind that he who sent them has finished his labors.

"No man, in his day, has so endeared himself to the people. No man, in private life, was so widely known. His death will be mourned over the whole country. Everybody who met him was his friend.

"None knew him but to love him,
None named him but to praise.

James Vick was, in the fullest sense of the word, a Christian gentleman. His daily life was a record of good works and kind deeds. The road from his heart to his pocket was ever a straight and a broad one, and no grass ever grew in it for want of use. To high and humble he was the same cheerful, genial man, with a pleasant, hopeful word for all.

"It has been my privilege to meet him almost daily for many years, and if there is in the world a better man, I have not yet seen him.

"Mr. Vick died of pneumonia on the morning of May 16th, after a very brief illness. He was born in Portsmouth, England, November 23d, 1818, and was, therefore, about sixty-four when he died. He has been in his time printer, editor, author, publisher, merchant. He came to America in 1833, and learned the printer's trade in New York, and set type with Horace

Greeley. From New York he came to Rochester, and became interested in various publications, among others the *Horticulturist*, and Moor's *Rural New Yorker*. When engaged on the latter he first commenced to grow flower seeds in his garden, and send them out gratis to those who, like himself, loved flowers. It made the commencement of his great business. He commenced the business practically in 1860. His success has been marvelous. Three thousand (3,000) letters per day was not an unusual occurrence, and more per day has often been received. He has paid more than thirty thousand dollars (\$30,000) per year for postage, and his *Floral Guide* has a circulation of over 200,000 copies. All this has been accomplished by hard work and faithful interest to his customers."

WOMEN IN HORTICULTURE.—This is the subject of a paper by M. Charles Joly, before the French National Society of Horticulture. He does not undervalue the "piano" education which so many ladies receive, but believes that if practical matters, such as thorough horticultural knowledge were added, it would often be a better aid in misfortune, than the more elegant branches which are alone taught. He would have horticultural societies offer such premiums as would encourage practical horticultural studies among young ladies.

WEBSTER AND PAWPAW.—A correspondent suggests that W. G. B. may consult his own authorities to some profit, in this that "Webster states that Pawpaw, or Pawpaw,—either is correct." For our part, as before suggested, we should not regard Webster's decision as final in a case of this kind, and we doubt whether Webster himself would claim such perfection. There is always new light to gleam on old subjects of this class. The reason given for Pawpaw in the original note seems so conclusive that we incline to adopt the Pawpaw to the exclusion of Papaw, unless still more light come to the rescue.

We may take occasion to note that the original paragraph was copied from a letter, and not strictly rendered.

The Indian word "assin" means stone. In combining it with another word, the final n could scarcely be left off, as it is part of the root.

WATSON'S NURSERIES, BRENHAM, TEXAS.—It is always a good sign when a man is well spoken of by his neighbors. The *Brenham Independent* has a good word for these nurseries. The new grounds were waste prairie thirteen years ago. Two hundred acres are now under trees. This includes a Peach orchard of fifty acres, and an orchard of twelve hundred Pears. How favorable the site is for nursery trees may be inferred from the fact that the Almond fruits regularly, the Japan Persimmon succeeds, and a plant of Chinese Tea has been there uninjured and growing freely for seventeen years.

WESTERN ART.—So many catalogues are beautiful, it is difficult to signal one more than another for any special excellence. But a rare picture of beauty is on the back page of Richardson's Catalogue of Roses, designed and executed, as it seems, by a Louisville artist. The vine, which is made to climb over the balcony, is so perfectly drawn, that any one can distinguish it as the beautiful Kentucky plant, *Ampelopsis bipinnata*. By the way, we call *Ampelopsis* Virginia, Virginia creeper, and the people have already named *Ampelopsis Veitchii*, Japan creeper,—it would not be surprising if *Ampelopsis bipinnata* should become a "Kentucky creeper." It is a very beautiful vine, and deserves to be more generally grown. It does not adhere to the wall by suckers, as the other two do, but has tendrils like a grapevine.

THE REDWOOD.—The road wound up from the green meadows through a park-like region, shaded in many places by groups of Redwood, or *Sequoia sempervirens*, a very elegant Conifer, peculiar to the coast range of California. A further interest attaches to it from the fact that this name was given to it before the discovery of the so called *Wellingtonia*, which was properly named *Sequoia gigantea* by the botanists, on account of its near resemblance to the *S. sempervirens*. The original name was given in honor of a peculiarly intelligent half-bred Cherokee Indian, who was called Sequoyah; he had, among other things, devised something of an alphabet and written language for his tribe, and was therefore called by an American punster "the best red (read) man out." Such is the

origin of the received scientific name of the big trees, as they are universally called in their own country; and we can hardly complain if the Americans are unwilling to designate one of the greatest of their own national wonders by the name of a British hero.—"*Over the Sea and Far Away*," by T. W. Hinchliff, M.A., F.R.G.S.

SPINACH.—This vegetable, which belongs to the same family as the beet (*Chenopodiaceæ*), appears to have been unknown to the ancients, unless, as some authors think, it might be the *Chrysolacanon* of Dioscorides or the *Blitum* of the Romans; but the properties described as belonging to these plants, make it very uncertain what species is really intended, as several of this order of plants have been, and are still, used for cooking and salads. Spain is supposed to be the first European country into which Spinach was introduced. Miller, in his "Gardener's Dictionary," says: "Perhaps the Spaniards had this plant from the Saracens; but by some it is considered to be indigenous to Spain, as many of the old botanists—such, for example, as Bock—call it *Olus Hispanicum*. Ruellius and others name it *Atriplex Hispaniensis*."

INSECTS INJURIOUS TO FOREST AND SHADE TREES.—By A. S. Packard, Jr., Bulletin No. 7 of the United States Entomological Commission, issued by the Department of the Interior.

This is another of the admirable series which do so much credit to the United States Government, and is of so much scientific value to practical culturists. Almost all the familiar insect troubles are exposed—some few overlooked. The ash-borer is one of these, though it is not the troublesome creature other insects are.

PEACH CULTURE.—By James Alexander Fulton. New York: Orange Judd Company. New Edition.

The first edition appeared but a few years ago, and that a new one should be so soon called for is in itself a tribute to the value of the work. It is not a re-issue of stereotype plates, but the chapters have been re-written, and the results of the past year's experiences incorporated. Residing, as the author does, in the great Delaware Peach region, he is well situated to give, from practical experience and observation, all that is known about this great pomological industry in that part of the world. It is, therefore, a practical work of great value. Where the author indulges in opinion merely, he of course only

offers them, as he has the right to do, for what they may be worth. He regards the disease known as the "Yellows" to arise from the fact "that the supply of tree nourishment is deficient, and the tree becomes feeble and diseased, and, finally dies of consumption. It is a case of Arbor consumption." "What medicine does a famishing man want but wholesome food?" and in regard to the symptoms, he notes that the Peach grower "notes the fatal sign as quickly as the skillful physician does the hectic flush on the pale cheek of the fair consumptive." But is it a fact that consumption in human beings arises from an insufficiency of wholesome food? And it would be worthy of inquiry why the many kinds of trees, which must now and then find themselves on poor soil, do not get the same symptoms of disease the Peach gets.

However, these matters of opinion are of little consequence as against the practical value of the excellent work.

BOOK OF PLANT DESCRIPTIONS.—By Prof. George G. Groff, Lewisburg, Pa.

This is a cheap book of blanks, which are arranged as charts for students of botany. The student examines a plant, and fills in the blank spaces what he finds in the examination. They are capital aids in botanical studies.

THE SILK WORM.—Manual of Instruction. By C. V. Riley. Published by the Department of Agriculture.

A very, valuable paper, especially because it is so timely. It seems to be beyond a doubt that the silk worm feeds as well on the Osage Orange as on the Mulberry, and that the silk is just as good. Establishments in the South are springing up. One by Rev. Mr. Lowery, at Huntsville, a colored man, working among colored people, was the first, we believe, to make this modern silk industry a success in the South, and it would have been pleasant if there had been any opportunity to mention his name among some others given here.

PROCEEDINGS OF THE AMERICAN POMOLOGICAL SOCIETY.—The Secretary, Dr. W. J. Beal, with that prompt energy for which he is noted, deserves much credit for the completion of his task so early in the season. Mr. Barry's work in preparing the catalogue has been onerous and is deserving of all praise. Besides being one of the most prompt in appearance, it is one of the most valuable of the series.

SCRAPS AND QUERIES.

DETROIT CARNATIONS AGAIN.—The Messrs. Taber write: "We notice in the April number of the GARDENER'S MONTHLY, Messrs. Breitmeyer's remarks on the new Carnations offered by us. While we do not care to occupy the valuable columns of the MONTHLY with personal differences, and although these remarks have been quite successful in increasing the demand for these plants we offer, we desire to say a few words in reply. If the Messrs. Breitmeyer introduced the varieties we are now offering, how is it that they are not quoted in any reliable florist's catalogue? We fail to find them, and we should like to hear from the parties in 'nearly every State in the Union' who have purchased these carnations under other names. The Messrs. Breitmeyer say that 'these carnations are, very true, good winter blooming varieties, and possess to some extent the merits said gentlemen claim for them.' We consider them the best, and if the Messrs. Breitmeyer do not consider them the very best, why is it that they grow James A. Garfield and James G. Blaine almost exclusively for their cut work?"

[We had hoped that the note in our last number would have ended this trouble about the Carnations, but as Mr. Taber's name was mentioned, it seems but right he should have a chance to be heard.

There seems to be no reason for sharp writing in this case. Mr. Hinze, it seems, did not name his Carnations before distributing them. Under these circumstances the most natural thing in the world is that they should appear under several names. Different names for the same thing may thus arise without any intention on the part of any one to do wrong.—Ed. G. M.]

PAPER BY THE EDITOR.—A correspondent, "C. H. M.," calls attention to the fact that an Essay promised to be prepared by Thomas Meehan, at page 6 of the recently published proceedings of the American Pomological Society, cannot be found by him in the work.

It is but justice to Mr. Meehan to say that he did not promise to prepare an essay for the meeting. He was asked to do so, but declined, as he always has to do, on account of too much pen work already. He did say, that if present, he would give a few verbal remarks, if such would prove acceptable. The putting him down for a prepared paper was no doubt a mere oversight. He was not able to be present, and so not even the verbal remarks could be made.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

ASSOCIATIONS OF CITY FLORISTS.—In large cities, like Philadelphia for instance, it is only with great difficulty that societies for the encouragement of general horticulture can be sustained. Brick and mortar push the gardens far into the suburbs, and the suburb on the north becomes farther away from the suburb on the south, than if there were no great city between them. But the cut flower trade and the trade in plants for temporary decoration, and kindred branches grow on just what the other loses, and becomes in time almost a commonwealth of its own. Recognizing this fact, the city florists of Philadelphia have determined to see what can be done in the way of forming a sort of City Horticultural Society, in which this sort of horticulture should be the great central idea. There seems to be no reason why such an organization may not prove a success. At any rate the attempt will be watched with interest elsewhere.

PREMIUMS AT HORTICULTURAL SOCIETIES.—It is very hard to keep horticultural societies together under the old system of personal competition. Sooner or later the valuable collection of Jones are withdrawn, because the unfortunate committee decided Smith's were better. Time and again have we called attention to this and insisted that the premiums should be awarded for inherent and not competitive merit. Let premiums be given because the specimens are the best the committee ever saw, and not because they are better than Smith's, and let them be compelled to point out in their reports in what particulars the rewarded articles excel. Then the reports would be worth something to everybody. As it is the reports are worth little but waste paper. We often wish we could help some of these societies by giving their reports a wide circulation. But what is the use as it is? Before us is a report of a society in the success of which we take much interest. It tells us that A. had "a fine" Erica; B. "a fine" Cherozema; C. "fine Carnations;" D. "fine Oranges;" E. "fine Tulips;" F. "fine" roses; G. "a neat collection" of cut flowers, and H. simply "a dish" of Mushrooms.

To those who attend the meetings, the information is stale; to those who do not, it conveys nothing.

MARYLAND HORTICULTURAL SOCIETY.—This society continues in a prosperous condition, the exhibitors and visitors at the meeting being numerous, and the articles exhibited evidencing high skill. Mr. Robert J. Halliday contributes \$100 in premiums of \$10 each, \$50 twice a year, to be competed for wholly by the gardeners of amateurs. Three of these were competed for at the April show. Mr. F. B. Carroll, gardener to W. H. Perot, gaining one for Azaleas; W. D. Hamilton, Patterson Park, foliage plants; and Wm. Smith, gardener to R. W. L. Raisin, table design.

THE MASSACHUSETTS HORTICULTURAL SOCIETY.—The March exhibition was well sustained by exhibits, and the attendance was highly encouraging. Azaleas and Orchids, seem to have been the chief attraction, though Roses, Camellias, Rhododendrons, Pansies, Primulas, Iris, Cyclamens, Violets, Heaths, Cinerarias, and innumerable other pretty things gave a good account of themselves. M. P. Wilder is still as ever actively engaged in sustaining the good work. He had thirty varieties of Azaleas there. Among the exhibitors, were F. B. Hayes, W. J. Voss, Mrs. Gill, Mrs. Wood, Hovey & Co., Edwin Forbes, Rodney Wallace, Josiah Comley, W. Patterson, Mrs. Pauline Durant, John L. Gardner, John B. Moore, F. L. Ames, C. B. Gardner, John E. Peabody, Mrs. Wood, James O'Brien, Josiah Crosby, Henry B. Comley, Warren Fenno, A. S. McIntosh, C. E. Grant. We give these names of exhibitors as showing how well meetings are sustained.

GERMANTOWN, PA., HORTICULTURAL SOCIETY.—The May meeting was very largely attended. The chief interest centered in the competition for the premiums for "Wild Flowers." The ladies of the "Botany class of Germantown," exhibited fifty-nine named species, and Mr. Joseph Meehan seventy. Considering the unusual backwardness of the season, the fact that so many species were collected shows what an admirable field for the botanists is the vicinity of Philadelphia.

A very remarkable exhibit was a seedling

Heliotrope, with a cyme of flowers twelve inches wide. It was the plant's first flower. If it continues in this way it will be a wonderful variety. It was exhibited by Mr. D. Curtin. Another admirable plant was *Begonia rubra*, exhibited by Mr. James Barrows. It was two feet and a-half high, central stem perfectly straight, numerous branches arranged in a regular manner around the stem, from which hundreds of its large bright red flowers depended.

Professor Thomas Meehan gave his usual free lecture on the botanical and horticultural features of the plants on exhibition.

LAWRENCE, MASS. HORTICULTURAL SOCIETY.—At the last meeting the following Resolution was passed:

Resolved, That the President, Lawrence Davenport, notify the GARDENER'S MONTHLY of an organization known by the name of "The Lawrence Cottagers' Amateur Horticultural Society." Its object is to encourage a better growth in flowers, fruits and vegetables. It holds its meetings monthly; proposes some subject at each meeting for essays and discussion at the next. Subject for discussion May 1st is, "The tulip, its habits, and how to grow them." The society opened on March 27th, with fifteen members; at the second meeting, April 17th nine more were added, and the prospects are very encouraging. This, is the first step taken in this place—a city of forty thousand inhabitants—towards anything of the kind, and we hope it may grow and become a society worthy of its name.

AMERICAN NURSERYMEN'S ASSOCIATION.—This very useful association will meet this year at Rochester, N. Y., from June 21st to 24th. The proceedings will be very interesting, and it is expected that the attendance will be large. Prof. Meehan, J. J. Thomas, C. L. Watrous, Patrick Barry and others will prepare papers, or make addresses.

PHILADELPHIA FLORISTS' ASSOCIATION.—The gardeners and florists of Philadelphia have formed an association called the "Philadelphia Florists and Growers' Association." It has for its object the mutual improvement and benefit of its members. The meetings will be held monthly. It is exclusively a trade organization, and supplies a want long felt by the florists of Philadelphia. It has not yet been fully determined to hold exhibitions, but the feeling among the gardeners seems to be in favor of making public displays of their skill. It will be some

little time before the new association is in good working order. It promises however to be very successful and worthy of support.

The officers elected for the year are: Robert Kift, President; W. F. Fancourt, First Vice President; Thos. M. Fergusson, Second Vice President; Danl. D. L. Farson, Recording Secretary; Wm. E. Meehan, Corresponding Secretary; Robt. Craig, Treasurer.

PROGRAMME OF THE SPRING EXHIBITION OF THE ROYAL HORTICULTURAL SOCIETY OF TUSCANY.—It is very interesting to note by this "programme" in what estimation the *Camellia* is still held in Italy. There are ten different classes or sections for them, with from two to three premiums (all medals) in each. In fact there are twenty-five premiums for *Camellias* alone.

AMERICAN FORESTRY ASSOCIATION.—The meeting in Cincinnati was a great success, viewed either in point of distinguished attendance, value of the papers read, and the influence which the meeting will have in educating the community to an appreciation of the national forestry wants. In view of the general beneficial influence which will result, it will be perhaps fair not to criticise too closely the character of many of the papers read. To our mind the Forestry question is a very narrow one. Everybody knows that timber is of the first importance to a community. Everybody wants trees planted, but everybody wants somebody else to plant them.

What we want to know is, will it pay individuals to plant trees? If so where and how? If it can be demonstrated that it will not pay any individual without State aid, what and how should this aid be granted?

In regard to existing forests, what should be done to prevent forest fires?

So far as we can learn nothing was done in this practical direction. How the springs dry up; how the Chinese eat one another in punishment for cutting away forests; how many hundred thousand millions of feet of boards we may yet cut from our forests; how many forest schools Europe has; all these and similar topics were deservedly well ventilated. A memorial to Congress to establish a forestry school near Minneapolis, seems to be all the official result of the meeting. Another is to be held at Montreal in August, a week before the meeting of the American Association, when it will probably turn to more practical work.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

JULY, 1882.

Number 283.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

What we said last month about the slowness of the world to learn, and the little encouragement the teacher receives as he looks abroad for some impression of his work, is as well illustrated by many other things, as by trees and tree pruning. Take the Rose for instance. Just now there is a rising craze for budded Roses—Roses budded on the Manetti stock. It is evident that a vast number of persons do not even know that they are simply going on in the endless round of the old-new things. As this is the month for rose talk we will copy as perhaps a seasonable bit of advice, suited to the new budded Rose mania, what was given from the pen of the writer over twenty years ago:

Many persons use the Manetti stock to bud Roses on,—and it is recommended to “bud them as low” as possible. It is better to bud them a few inches above the ground,—for the Manetti will throw up suckers which, if left, will kill the Rose, and they are better detached when we can see a little stem.

When people will have new Roses at the lowest price,—or where much wood is desired for propagating purposes, or where extra fine flowers of weak growing kinds are desired, budding on the

Manetti is all very well,—but it is all very bad to use the Manetti for the general public. Practically the bed of choice grafted Roses, becomes all stocks in a few years.

In budding, select strong, healthy shoots,—and let the buds to be used for the inoculation be a little in advance of the stock. Works on Roses mostly still keep up the recommendation originally copied from English works to “take out the wood” from the bud,—but no American operator does it.

If you have more varieties than you care for, some of them poor, bud the rejected ones with the better kinds.

Scarce kinds of Roses may be propagated this month, by eyes of the unripened wood taken off just after flowering, and set in sandy soil in a shady place. Cuttings from shoots grown in partial shade root better than those matured in the full light.

As soon as a flower fades on the Perpetual Rose cut it off. This is the way to have them flower again well in the Fall.

All this is just as true to-day as when we first wrote it. No wonder so many clergymen are tempted to use up old sermons! When Sir Walter Scott tells us he loaned a neighboring lady the same book four times over in four years, before she came to believe “she thought

she had read something like it before," we may take it as a gospel truth.

Hollyhocks will be coming into bloom at this season. They have now become so much improved as to be one of the most popular flowers for the Summer decoration of the flower-garden. If the kinds are kept carefully separate, any particular variety will reproduce itself from seed. They may be more certainly kept pure by cutting off the flower stem; each bud will make a plant. The seed should be sown as soon as ripe in a light rich soil, in the open air. If retained till late in the season, they will not properly flower until the next year.

Amateurs may have some rare or choice shrub they desire to increase. They may now be propagated by layers. This is done by taking a strong and vigorous shoot of the present season's growth, slitting the shoot a few inches from its base, and burying it a few inches under the soil, or into a pot of soil provided for the purpose. Any thing can be propagated by layers; and it is an excellent mode of raising rare things that can be but with difficulty increased by any other.

The time is coming when transplanted trees of the past Fall and Spring will suffer more than during any other part of the season. If they show a vigorous growth of young wood, no danger need be apprehended, as it indicates that the roots are active and can supply all the moisture the foliage calls for; but if no growth has been made, no roots have been formed, and the leaves are living for the most part on the sap in the wood and bark, and hot, dry weather will tell with injurious effect on such trees. This is generally first shown by the peeling off of the bark on the southwestern side of the tree,—the most drying aspect; and where such exhaustion appears probable, much relief may be afforded by cutting back some of the branches, syringing with water occasionally, shading the trees where practicable, or wrapping the trunk in haybands, or shading the southwest with boughs or boards.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing it time to gradually soak away, and when the surface has dried a little draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight

of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more is wanted.

Keep the pruning-knife busy through the trees and shrubs, with the object of securing good form. Judgment will soon teach one which shoots would spoil the shape if not taken out. We tried to impress this truth strongly on the reader's mind last month, but think it important enough to reiterate.

COMMUNICATIONS.

GARDENING EXPERIMENTS, WISE AND OTHERWISE.

BY MRS. R. B. EDSON.

That the summer of 1881 was a delusion and a snare, everybody knows, and it would be folly to repeat it at this late day. And yet, notwithstanding its general unsatisfactoriness, its cold and wet beginning, and its hot and dry ending, there yet remains something to be said of it by way of admonition, and possibly example. And first, for the reason that it came first, but more especially because it is a confession of failure, and I want to have it over with, comes the admonition. It is a delight and gratification to record successes, but the failures—ah! the least said about them the better. We like best a dignified and becoming reticence in regard to them. And why not? It is the big squashes that go to the fair; the little ones stay at home.

But to come back to my experiment. I read in the MONTHLY for April, 1881, an article by Miss A. G., on "Caladiums as Bedding Plants." Immediately I was fired with a spirit of emulation. I would have a bed of Caladiums that should be the wonder of the town, and cause those Baltimore people to wish they had never been born. A hot sun seemed, by the article mentioned, to be the greatest difficulty to their successful cultivation. I congratulated myself that here in New England we did not have the fierce heat of the South to contend against, and having selected a partially shaded location, I set them out June 1st, with the thermometer at 79° in the shade. They were all finely started and made a good show at the first. I had made arrangements for sheltering them from sun and wind, and my perfect confidence in those Caladiums was something quite wonderful to contemplate. In about forty-eight hours after they

were put out, a "cold wave" swooped down upon us with vengeful fury. For over a week the mercury ranged from 33° to 49° at night, with a cold easterly wind, and storm part of the time.

I covered them up, poor little "babes in the woods," with leaves, straw, inverted flower-pots, and the like, but the cold went through it all and chilled them to the very marrow. I really couldn't sleep nights, thinking of the new "slaughter of the innocents" going on, it seemed to me, at my instigation. All this time the leaves were losing their beautiful color; and though it grew warmer, a little after a time, the *Caladiums* only grew smaller. After three weeks trial, fearing I should lose them utterly, I took them all up into pots and set them in a sunny window. Ah! how delightful they were! They grew like magic, and spread out their lovely leaves, each leaf growing prettier and prettier in its markings the season through.

But I have lost my confiding faith in "*Caladiums* as bedding plants," at least for New England. But who cares for a *Caladium* bed anyway? Baltimore can have them all to herself.

I flowered for the first time *Hyacinthus canadensis* last summer. I think it has been much overrated. The stalk runs up spindling and the flowers look straggling, being someway apart, and never many at once, as they soon fade. They have no fragrance, and only by having a large bed of them would they make any show in the garden, and I do not think they will prove of any value for cut flowers. Perhaps, however, a more favorable season will give me a better opinion of them.

I grew, from seed, a bed of new *Salvia farinacea*. It began blooming about the first of August, and was the last to succumb to the frost. I was, however, a good deal disappointed in this also. I had somehow got the impression that it was after the style of *S. splendens*. Its small, close-set flowers are not at all conspicuous in the garden. It makes no show at a little distance, but the curious woolly-looking calyx gives it a dainty look on close inspection, and the delicate shade of color is excellent for toning down reds and yellows in bouquets. It is worth growing for this purpose alone. But I hope some day florists will give us a blue *Salvia* of this shade, with flowers the size of *L. splendens*, and as closely set and as free flowering.

Through the generosity of Mrs. Wm. Barr, of Orange, N. J. (a lady who grows plants for the

pure pleasure of giving them away), I received a half dozen seedling plants of the new single *Dahlias*. She imported the seed from Cannell's, from which they were grown. But I hear them called "Mexican *Dahlias*," and the question arises, why import seed from England if they are natives of this continent?

They grew freely and came into flower about the middle of August. One grew over six feet high, and the plant and flower were no different from seedlings I had previously grown from our ordinary *Dahlias*. The flower was large, single, and in color a fine maroon. The other five, however, were very dwarf and bushy in growth, and the flowers were about half as large. The colors were light and dark scarlet and canary yellow, the color very pure and vivid. They are charming for bouquets, as well as exceedingly brilliant and showy in the garden. If they could only be made to flower earlier they would be of great value for garden work. I have seen lovely shades of pink, purple, and a rich, velvety claret, as well as pure white. If they can be kept dwarf I think they will become exceedingly popular. A plant in full flower—and they are very floriferous—looks as if set with glowing stars, as they stand erect on their long, graceful-looking stems.

I also received from Mrs. Barr a basket of the new *Coleus*, something over twenty varieties. With a few exceptions they grew and colored finely, notwithstanding the exceptional character of the weather. Of the dark sorts *Superbissima* was best, Marvellous and Kentish Fire next. The light varieties doing best in open ground were *Illuminator*, *Sunfish*, *Speciosa* and *Retta Kirkpatrick*, the last two green and white. Of the spotted varieties *Spotted Gem* is the most reliable. All the striped and spotted sorts are, however, very much alike. For indoors, *Starlight* is the prettiest thing I ever saw. It is a beautiful yellow veined with vivid crimson. All of them are, however, fine for the house, if you keep them close enough to the glass. And yet, after all, for a rich mass of color on a lawn, *Verschaffelti* is still king.

The prettiest thing in the way of a foliage plant I ever grew, and which I have never seen mentioned, though it may not be new, was *Nicotiana variegata*. I had the seed from E. Wyman, Rockford, Ill., and have seen it advertised by no one else. It seems to be a variegated form of the ordinary *Nicotiana*. It is, however, less robust in growth, mine growing from three to

four feet high. The leaf-marking is exquisitely beautiful. The color and style of variegation is almost identical with that of *Alocasia macrorrhiza variegata*, the well-known hothouse plant. The stems are marbled, green and white; some of the leaves are all white, some striped and mottled, with a beautiful shade of "pea" green. The white has a creamy tinge. As it approaches flowering the stock is all white, as well as the pedicels and calyx. The flowers are a purplish pink, and in large clusters, and contrast charmingly with the foliage. I have never seen anything so pretty for a group of foliage by itself of green and white, as this. Only about ten per cent of the seedlings are said to be variegated. But as the second, or at most third, pair of leaves show the variegation, it is an easy matter to pull up the plain ones, which should at once be done, or they will stifle the others.

In closing, I desire to recommend once again, for bedding plants, the tuberous *Begonias*. I find them the easiest of culture, and the most continuous bloomers of anything with which I am acquainted. At first I gave them shade and a good deal of extra care, but I find they will stand rain, or sunshine, or heat better than *Zonale geraniums*, particularly rain, as that ruins, for the time, a geranium bed. There is but one obstacle to their becoming as popular as the latter, that being the comparatively high price at which they are held. They are showy in the garden, and for cut blooms nothing is prettier, or lasts longer after cutting. Have a bed of them—everybody.

SEEDS AND SEED SOWING.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

Every season we hear numerous complaints on the failure of seeds to germinate, etc. We hear that seeds were procured from such and such a firm and not one came up; seeds were gotten from another place and one-half germinated; and seeds that were obtained from another prominent seedsman all came up. Now the amateur is convinced that seedsman No. 1 is a rascal and gives his verdict accordingly; seedsman No. 2, although not quite so bad as No. 1, is nevertheless not an honest man,—of this he is quite convinced; and says that No. 3 is the only reliable one, etc. Now this certainly looks very bad for seedsman Nos. 1 and 2, but the purchaser never seems to reflect that perhaps the season is more advanced by the time he gets his orders

filled from No. 3, consequently the weather is more favorable to their germination.

Some seeds require heat and will not vegetate freely without it, such as Tomato, Coleus, Lantana. Others again will grow more freely in a cool atmosphere, and will often lay dormant until the weather is cool. Cabbage, Pansies and Sweet Alyssum seed are good examples of these. Many seeds that vegetate freely out of doors, lay dormant for a long time under glass. I have known Clematis, Smilax, Verbena and Lantana to lay dormant in the soil of the seed boxes for six months, and then being exposed to the air vegetate freely.

I am satisfied, from the experience of others and by experiments made by myself, that there is as much importance in the way the seeds are sown and the condition they are kept as there is in the freshness of the seeds. Many seeds germinate more freely by being soaked in warm water, such as Cypress Vine, Canna, Thunbergia, whilst this process would be the death warrant for many of the seeds of Palms, Cactuses, etc. There can be no set law made for sowing seeds, as almost every kind has its own peculiar wants, and the cultivator must or ought to study their peculiar requirements if he wishes success. A pretty safe rule to go by in sowing is to bury the seeds no deeper than the seed is thick; for instance, if the seed is 1-8th of an inch thick, it may be buried 1-8th of an inch deep, or a very little deeper. More seeds are killed by being buried too deep than by being sown too shallow. Any ordinary sound seed will vegetate if no more than two years old, and many kinds, such as Zinneas, Asters and Chrysanthemums, actually seem to improve by keeping two or three years.

The plan I follow in sowing fine seeds is to take boxes of any convenient size or shape, but no more than 2½ inches deep; glass box for instance, sawed in half makes two complete boxes or flats, and sometimes furnish the frame for a third. If it has no cracks, I bore holes in it for drainage; and then cover the bottom with any loose sievings, broken pots or a thin layer of moss, to the depth of half an inch. Over this I fill in, to within an inch of the top, with fine soil composed of sand, leaf mold, and loam in equal parts, press it firmly and gently down, making an even surface; then soak the whole with water through a fine rose water can, and an hour afterwards, when drained off, sow the seeds on the wet soil and cover lightly with fine

light soil; cover this with panes of glass. Your box will hardly want water until the seeds are up, when the glass must be removed.

Where the seeds are very fine, such as Calceolaria, Torenia and Ferns, etc., it is best not to cover the seed with soil, but, sprinkle a little moss, that has been rubbed through a fine sieve, over them. Place the boxes in a situation where they will obtain all the light, but not be fully exposed to the rays of the sun. Shade the boxes until the seeds are up, and if the light comes only on one side of them, turn the box around so that the front will be in the rear every other day. Prick off the young seedlings in boxes of sandy soil as soon as they show the rough or third leaf.

SOME SOUTHERN EVERGREENS.

BY A VIRGINIA CONTRIBUTOR.

Prunus Caroliniana, Ait, and *Ilex Cassine*, Walt, are two beautiful evergreens not generally known and rarely seen in arboretums, yet they deserve a place in every collection. The first is not even included in *Gray's New Manual*, but appears as *Cercasus Caroliniana*, Michx, in Wood's Class Book, though in his later work, *The Botanist and Florist*, it is given as above. The common name in both instances, Cherry Laurel, is not mentioned by Prof. Sargeant in *Forest Trees of North America*, 1880, where he gives it the local name of Mock Orange. It is a native of North Carolina, as its specific name implies, and is found thence south and westward. It does well transplanted in gardens on the southern border of Virginia, and only suffers in most severe winters when its glossy leaves are covered with ice and sleet, although it does not attain the height usually assigned it. In foliage it considerably resembles the orange, though its leaves are not of as much substance, and the small twigs more gracefully drooping in habit. It bears the knife well and is often farther south trimmed into fanciful shapes. The flowers and fruit are of no value, though the former are fragrant and attractive to bees; but for the beauty of its light airy branches of deep, shining green leaves it is unsurpassed and ought to be more generally cultivated than it now is. It is said to be poisonous, but of that there may be some doubt.

Ilex Cassena, Walt, (or as Gray gives it *Cassine*, L.) does not appear in Prof. Sargeant's list. The southern portion of Virginia is its northern limit, and it extends southward along the coast

line to Texas. The shrub, rather than tree, rarely exceeds fifteen to twenty feet in height, is dense in growth and foliage with deep green, shining leaves about one inch in length, and has this advantage over box that its foliage is always green and beautiful and never rusty colored, as box often becomes. In addition the branches are in autumn covered with a profusion of scarlet berries clustered closely to the small twigs even, giving it when full of fruit a beautiful appearance. It was called by the natives "Yaupon," and from its leaves they made a black tea, which is still used to a large extent by the people living along the coast and has given that local name to the shrub. But those who can obtain the imported article do not hold it in high esteem. It is also called *Cassena Tea*. During a short trip made to the coast section of North Carolina last autumn, I saw no more beautiful sight than these deep shining bushes covered with scarlet berries.

HELONIAS BULLATA.

BY W. F. BASSETT, HAMMONTON, N. J.

Among the native plants of New Jersey, and we have some very fine ones, few if any present better claims than the *Helonias*. The leaves alone are quite ornamental, and the flowers, with their delicate light purple shade, are very showy, the blue anthers on exerted stamens giving something of a blue shading to the whole flower at a little distance, and they are quite fragrant. I have not tried to cultivate it on dry soil, but Josiah Hoopes, I think, has succeeded well with it. I have transferred it from one swamp to another, and even when in full bloom it does not seem to suffer at all from the removal.

THE POLYANTHA ROSE.

BY W. F. HIBBERD, LOUISVILLE, KY.

The Roses of this new class exhibit some qualities that must materially change the aspect of the rose business when they become sufficiently circulated.

Roses have not been bedding plants; the attractions of their individual flowers, and not the appearance they present when collected in masses, has been their distinguishing feature. True, the most generous Teas and Chinas bloom freely enough to make a rich display, but even these come in crops separated by longer or shorter intervals, and their habit is against them

when "effect" is the object in view. This is not the case with the *Polyanthas*; they are dwarf—they bear their flowers in clusters above the plants, and they produce them without intermission. Their every shoot is a flowering one, and this without any exception to be seen in several hundred plants, closely observed for more than a year, even those pushed by cuttings too long in the sand being capped with buds. In appearance they are very pretty, whether the blooms are considered individually, or the plant with its canopy of flowers as a whole. It would be hard to mention other qualities to be desired in plants for masses or borders. As yet their colors are all light, but I think time and experiment only are wanting to add brighter shades, and it is in white plants for bedding that we find the least variety from which to choose.

Again, they will be found valuable as window plants. I have long been in doubt as to our being justified in recommending roses of other classes for that purpose, as they are satisfactory in very few instances. The *Polyanthas*, however, must not only prove superior to all other roses, as pot plants, but will not unlikely be the most popular of all flowering plants for house culture, their most prominent characteristics being exactly those desired.

Florists will find them very convenient to manage as they root readily and rapidly, can be grown by any one, and may be had in selling condition at any time. Their graceful beauty ought to make them popular market plants.

While attaching a great value to these varieties, I am not inclined to think the qualities mentioned at all elevate the standard of the Rose, for its greatest beauty must always lie in the richness and perfection of its individual flowers, characteristics necessarily precluded where the blooms are so small. They will be grown, however, where other roses will not succeed, or require more patience than the grower possesses, and they may furnish a new element in bedding plants where any such additions will certainly be welcome.

Paquerette and the new *Mignonette* are probably the best for out-door use; the former has tight little rosettes of white, about an inch across and very double, never showing a centre nor losing their regular circular form, and I once counted forty-two buds and flowers in one head. *Mignonette* is much like it, with a delicate mingling of pink and white. *Anna Marie de Monttravel* so far promises best as a house plant; its

flowers are a half larger and of irregular form when open, but when half expanded are much more beautiful than the others are in any state, being well worthy the application of the usual floral adjectives.

FLORAL IDENTITIES.

BY N. F. F., WAVERLY, MD.

I have *Scarlet Bedder Geranium*, which is in every particular the counterpart of the variety *General Grant*. Are they not one and the same variety?

The origin of *Scarlet Bedder* would not be difficult to ascertain, but who is responsible for the variety *General Grant*? If this variety be legitimate offspring, the originator need not be ashamed of such progeny. But one can hardly help feeling a little surprise at the singular coincidence, that two such geraniums, which cannot possibly be distinguished the one from the other, should have been raised at the same time by different persons.

Then amongst the few really good bedding *Coleus* of recent introduction we have *Glory of Autumn* and *General Grant*, which is one variety with two names. The writer having been accustomed to look at this *Coleus* from its infancy, would like to be informed in what way the more poetic, though less illustrious name, *Glory of Autumn* has been tacked on, in place of or in addition to the martial cognomen applied to it by the raiser.

Will some one please rise to explain?

A FEW BEDDING PLANTS.

BY SOME GREEN.

When a geranium is called pre-eminently beautiful, like the catalogues call *Mrs. Charles Pease*, what shall we say of *Emile De Girardin*, which is much like it in color but better in every other respect? If you have the last you do not want the pre-eminent.

After reading some superlatives on *Acalypha Macafeana*, I bought the "superb" thing; and was surprised at its dull colors blotched a little brighter. Not one who saw it during the summer thought it as fine as a *Coleus*. Still the little black fleas, such as eat potato tops, like it and eat the leaves full of holes.

In some forty varieties of geraniums *President Leon Simon* was marked first as a bedder, while in color there are many better. *Deputy Taffy*

is darker and has a fine truss, but the flower stalks are slender and every rain breaks them down. McLeod has fine double pips and a good truss, but one-half of the truss is dead by the time the other half is out. This is the case with General Grant, Queen of the West, and others of the "enormous" trussed varieties. Of what special use is this enormous truss if not one-fourth is perfect at once. In the orange scarlet class none were satisfactory, as the dew soils the flowers and makes them still duller. Alba Perfecta was not so easily soiled as some of the other white ones.

In Roses I purchased some thirty varieties, mostly ten cent teas. During the latter part of the season some of these had on ten buds at a time. La France got up to six. I thought teas were of small growth, but some of these grew two feet high the first summer.

I followed Mr. Elwanger's list mostly. But the "extras," which are welcomed when you have none to be duplicated, did just as well. Clement Nabonnand grew stout and branching, and was very prolific. That nice little white one called M^{lle}. Rachele I believe, if of small growth and not profuse of blossoms, is good for what it does. Malmaison and Pearl of the Garden winter-killed most.

If you read some catalogues you will find "many" roses desirable and "extra" with special "merits," etc., and you hardly can go amiss if you have none. The following I liked best: Catharine Mermet, Marie Guillott, Marie Van Houtte, Malmaison, Perle des Jardins and Mad. de Vatory; and one rose that has good form, color, fragrance, etc., is worth several that have not these qualities. Paul Neron was the only Hybrid Perpetual that blossomed in the summer.

Roses like new ground, so I burned a brush heap to make it new and ash it. Then it is well to cut the blossoms as soon as they open. Almost any lady will accept a bouquet of roses, whether rich or poor. I give most of mine away.

A DISPLAY OF COLORS IN SPRING.

BY W. H. BOOMKAMP, PASSAIC, N. J.

In no other time of the year are flowers more appreciated than in spring. They attract a good deal of attention in winter, either on the ball dress of young, blushing maidens, or in the reception rooms of large fêtes, but seldom are they admired so much as in the opening of the

season, when everything revives with new vigor and splendor. As a natural fact the first flowers in our northern climate are either white or yellow, and blue or red ones, with a few exceptions, don't appear before the rays of the sun fall more perpendicularly on our part of the globe. Without exotic plants we would miss those darker colors that make spring so cheerful and pretty. There are still many gardens, however, where one should expect to see more variety of colors in the beginning of May than is as yet the case.

The florist or gardener is anxiously waiting for warmer and more steady weather, for as long as those chilly nights prevail, he don't trust his greenhouse plants out doors. His Geraniums, Verbenas, Coleus, etc., are ready for planting out, but the night frost don't allow their appearance outside the greenhouse, and during all this time the garden looks dreary and desolate. And yet one of the beds in front of the house could show the finest colors and give such a display even hard to attain in midsummer with the choicest specimens.

There is no need to go in for heavy expenses to have a fine display of colors in the beginning of spring—a few dollars worth will answer the purpose. Many a gardener receives in the fall price-lists from seed houses, mentioning Dutch bulbs, without understanding the value those bulbs can have for him. It is true that it cost considerable money to fill a bed of three or four yards in diameter, with first-class Hyacinths, though good bedding Hyacinths can be had at any of the reliable seed stores for a fair price. I know many who got disappointed by buying from the wrong man; but when you deal with a house that imports it's bulbs direct from Holland, you seldom will find fault with them. It is with the bulb peddlers, as with all of them, "cheap, but no good."

Two hundred single early Tulips mixed is sufficient for any good-sized bed, and with a few Narcissus, or a Crown Imperial in the centre, will give full satisfaction. As a rule all bulbs, as Hyacinths, Tulips, Lilies, Crocus, will develop better when planted out-doors than in pots in the greenhouse. It is therefore not necessary to take first quality for bedding purposes, though first size bulbs are very desirable, and come to a perfection of form and color without rival in the greenhouse.

It is possible, also, to make a bed that can last at least two months (from the beginning of April till June), when planted with care and judg-

ment. Crocus, Hyacinths and Tulips don't flower all at once, and with even every kind are early and late varieties. Those bulbs, when planted in a mass together, will flower successively, and such a bed is the gem of your lawn in early spring.

The finest designs can be executed with bulbs and when a flower shows such a brilliancy, and fills the air with such a delicious fragrance we cannot help admiring it, and never tire of seeing it amidst the young green colors of nature's children.

A FEW DESIRABLE SHRUBS.

BY MRS. M. D. WELLCOME, YARMOUTH, MAINE.

Here in Maine, where our winters begin in autumn and project far into spring,—even into May this year, judging from the snow which is falling as I write,—it is desirable to have plants and shrubs that will endure their severity. Never were my Perennials so highly prized as in this very cold and unusually backward spring. The Pansies and Daisies are in bloom; the Tulips are budded; the perennial Phloxes set out last year are springing up with large clumps which have been growing a score of years in my garden. Sweet rockets, purple, and white, are sure to

live and are among the early spring bloomers; self-sown, they spring up profusely. The *Hydrangea paniculata grandiflora* for five years has endured the frosts, and yields profusely its immense trusses of bloom for two months. It is a shrub that ought to be in every garden. But it was of two new shrubs that I took my pen to write, and I am sure that as they have come safely through the long and very severe winter following their removal from Washington, they will endure any amount of freezing.

Dimorphanthus Manchuricus is grown for the grandeur of its foliage. Its multifid leaves are about a yard in length, and nearly as broad. Its native home is Manchuria.

Hypericum patulum. As this shrub has not bloomed, being bedded out late in June, I will quote from Saul's catalogue: "This magnificent hardy evergreen flowering shrub is a grand acquisition to our scanty list of hardy flowering species. Its individual flowers, which are produced in bunches, are pale yellow and of great substance, resembling much in appearance the beautiful *Gardenia Javanica*. It continues long in perfection, commencing to flower in June, and has been in perfection till the first week in November."

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

HEATING BY STEAM.

BY J. B. DAVIS, ANN ARBOR, MICH.

To "William H. B.," of Independence, Kansas, it may be said as follows: Any system of warm air-heating operates on such a delicately-balanced principle that the out-of-door winds easily, and usually, upset and frustrate it. The system by flues and hot water pipes in a greenhouse, as ordinarily seen, resembles the hot-air apparatus too nearly. Heating by steam is the best known system where distribution of heat is an important item. It may not be cheap, but it will be manageable. Heat can be carried through a small opening, about every form of object, to every place, and no fear of its non-

arrival in a well made apparatus. No fear of outside gales blowing it all away from one side of the building. The only effect of any extra demand at any point being to cause more steam to be used there and a greater demand to be made on the boiler by those pipes. If I were consulted as to what system of heating to use in a greenhouse, the point being to secure that best adapted to that purpose, I should at once say, "Steam, of course." So perfectly does it seem to me to be adapted to the requirements of the case, as I understand them. The matter of distribution is so far under control that I have no doubt any small locality, as a particular bed or section, can be given a special uniform temperature of its own.

As direct answers to the questions submitted one can say if wood is used to make steam, it

will need some attention during the night, not more than flues and likely not as much. I am not aware of any wood-burning steam apparatus now advertised that will run any great length of time without attention, but have no doubt such a demand made on almost any good maker would be satisfactorily supplied. If coal is used, hard or soft, an apparatus can be provided that will take care of itself for almost any night, certainly any but the worst. Such apparatus needs but little attention at any time.

In answer to the second question I would say that whilst steam pipes cannot be raised and lowered at pleasure (far from it), steam heat can, which I suppose is what is wanted. This might be readily inferred, perhaps, from the first paragraph.

As to the hottest point, it can be made to be hottest where you want it.

The dwelling and all the other buildings for a mile (or more) around can be heated by the same boiler if you want to pay for it. No impracticability about that usually.

Use the old boiler if it has the capacity. That is the question. But it might cost more to use it in a well-constructed apparatus than another would.

Set the boiler wherever you want it, so far as horizontal distance is concerned. Look out vertically. It would do in the greenhouse, as suggested, if low enough. It could be built in with brick and covered with sand, so as to keep the local temperature down. I do not advise this, as you cannot see what is happening to your boiler.

Pressures are carried, in my experience, up to sixty pounds, gauge pressure. There is no reason, but cost, that I know why they cannot be carried higher. This is not the direction in which to look for economy though. The economy may be expected at just as low a pressure as the apparatus can be worked, say from two pounds to five pounds gauge pressure. There was put in an apparatus, a few years ago, under my charge, that worked well under five pounds and under sixty pounds.

The steam may be carried as many miles as you will need, if you have rise and boiler capacity enough.

Now, while all this seems easy, and looks as if one might readily have just what was wanted, I wish to offer one word of caution. It isn't so easy to any one not qualified to prepare the necessary apparatus and erect it in a proper

manner. Not much worse blunders can be made in any matter of equal importance than in steam-heating. No one, not well qualified, should ever be allowed to have anything to do with the control of such work. Apply to parties of well established reputation for character and knowledge and skill. I don't want a job, and may be I have not the requisite character, knowledge or skill, as I certainly have not the reputation. As this communication costs nothing, it may be found worth it.

When I told my wife I was writing a short item for the *GARDENER'S MONTHLY* she said she thought I was writing the *GARDENER'S MONTHLY* itself; so I hasten to stop. Print what you please and no more—or none.

A MARECHAL NIEL ROSE.

BY N. ROBERTSON, OTTAWA, CANADA.

Mr. Thomas Elmitt, gardener here, has a Marechal Niel Rose that will give him the extraordinary yield of not less than five thousand buds this winter; at present there is no less than one thousand on it at one time. There seems to be several varieties of this rose—this one shows a much stronger constitution than any other. I have seen cuttings taken from it and grown alongside of others always show this; it is planted out in the end of his greenhouse, runs along the rafters fifty feet. Can any one beat this rose?

GLAZING AND PIPE-SETTING.

BY R. L. BLAIR, DES MOINES, IOWA.

A few weeks before the April number of the *GARDENER'S MONTHLY* arrived with Mr. Greer's short note on glazing, having occasion to put up some sash for a temporary purpose, and not wanting to wait for bedding the glass in putty, I concluded to tack them in loosely, end to end, just as Mr. Greer did, only not putting any candle-wick or anything else under the glass, and using the largest sized zinc points. One of these holds down the two corners where two panes meet. After a drenching rain of forty-eight hours, I found these the tightest of the whole range of sash, not a drop coming through anywhere. I am so well pleased with the plan, that I propose taking out my loose glass (made so by bad putty) this coming summer, and put them in after the same manner. I can thus avoid overlapping, and get rid of unsightly strips of dirt

wherever an overlap occurs, and save leaks from good-for-nothing putty. In these villainous days of frauds and adulterations, it is impossible to get any pure materials for making putty, and the miserable compound soon cracks and leaves the roof full of holes, and the glass gets loose and flies off with every high wind. I believe narrow strips of rubber on the shoulder of the rabbet and under the glass would make it perfectly tight, and I know the water will not run in where the panes of glass come together at the ends. The elasticity of the rubber would press the glass up tightly against the points or tacks, and thus keep all close, even when hot weather shrinks and dries the sash and so much glass gets loose.

I wish some one would explain to me the philosophy, sense or reason of our being told to set our line of pipes so that there shall be a rise of a foot or eight inches from the boiler to the expansion tank, one-third or one-fourth of the length, and then a gradual decline to the boiler. I always had an idea that water would run best down hill, and think so yet, but here it has to run up hill part of the way. I am of the opinion that the best place for the expansion tank, and consequently highest point, would be close to the boiler; there it would be all down hill work. I am confirmed in this belief by seeing the arrangement of pipes in the Chicago Floral Co.'s houses, where the flow expands into a large tank, high over the boiler, and is carried overhead through the potting and packing sheds, and distributed through the various houses, all on the downward flow. I was astonished at the number of houses thus heated by one boiler. I, therefore, have an idea to put my expansion tank immediately over the boiler, raise my line of pipes so as to gradually return from that point to the lowest; also to heat a propagating tank from the overflow of the expansion when the water gets warm. I am waiting to be enlightened.

MR. F. L. AMES' ORCHIDS.

BY WM. FALCONER.

Great in variety and in lavish profusion were the lovely orchid blossoms I saw at Mr. F. L. Ames', at North Easton, the other day. The *Dendrobiums* were especially gay and included *Ainsworthii*, a beautiful hybrid between heterocarpum and nobile; flowers white with deep amaranth blotch on lip; fifty-seven blooms on

a plant in a 5-inch pan; *Findleyanum*, an Indian species, with rich, purple tipped flowers, having a yellow blotch on the lip; splendidissimum, a hybrid between *macrophyllum* *Huttoni* and *heterocarpum*, flowers white, tipped with purple, and with a deep maroon blotch on the lip; the highly fragrant *heterocarpum*, with pseudo-bulbs twenty inches long and thirty-two blossoms on a bulb; *nobile pendulum*, more gorgeous, if possible, than the type; *Hillii*, with racemes of creamy white fragrant flowers; *crepidatum*, white, tipped with pink, and yellow-throated lip; *Wardianum*, one of the finest and most beautiful of orchids, and its white variety, which, though distinct and fine, is not, in my opinion, as good as the species; *luteolum*, from Moulmein, with a tuft of creamy flowers at the end of the shoots; *primulinum giganteum*, pink and white, larger and showier than the ordinary form; and other species and varieties, as showy but commoner than these that I have mentioned. Among a host of *Cypripediums*, as *Lowii*, *Boxallii* and *C. Spicerianum* (two plants), are in bloom. The large, waxy-white upper sepal of *Spicerianum*, this sterling novelty, shows more strikingly among exotic *Cypripediums* than do the long side petals of *C. caudatum*. *Cattleya Warszewiczii delicata*, with a profusion of 6-inch wide white to faintly purple-tinged blossoms is the gayest in its class. *Lælia flava* has yellowish flowers, but it is not as pretty as some of the more highly colored species, as *anceps*, or desirable as the modestly hued but fragrant *albida*. *Cœlogyne flaccida*, from Assam, though reckoned but a second-rate orchid, is quite prettily draped in loose racemes of dull white blossoms, that hang over the sides of the pot. Its commoner, but far more beautiful relative, *C. cristata*, is here in snowy heaps. *Dendrochilum glumaceum* has twenty airy racemes of fragrant blossoms to a plant; and among many other varieties the white flowering *Lycaste Skinneri*—one of the purest white blossomed orchids extant—is conspicuously in bloom.

I will now pass to the "cool" orchid-house, which is a ninety-four feet long lean-to, north-facing structure, and contains one of, if not the best grown collection of this class of orchids in America. Most of the Indian and other tropical orchids in the winter time, when not hidden with their gorgeous blossoms, are as "homely" plants to the casual observer as are the Cactuses of Mexico; for instance the naked-stemmed *Dendrobiums*, the ungainly *Cattleyas*, the rope-

rooted *Erides*, and the rambling *Renanthera*. But in this "cool" house the plants that are in blossom are in full leafage, too, a sturdy thrift that well demands the gay-clad wreaths and rambling spikes to cheer the vernal mass. In scores the arching wreaths of *Odontoglossum Alexandræ* (more properly *crispum*, but *Alexandræ* is the garden name, and ever likely to be used as such,) rife in variety, break over the bank of deep and bronzy green; and by its side its variety *Andersoni*, so rare and so expensive, but less beautiful than its peerless mother. *Pescatorei*, triumphans, *gloriosum*, *crocidipterum*, *blandum*, *Rossii majus* and others added to the show. Speaking of *Odontoglossum vexillarium* and *Roetzlii*, Mr. Robinson tells me he finds much difficulty in growing them. Now, when my friend and neighbor, Mr. E. L. Beard, used to have a collection of orchids, these two species seemed to be special favorites of his, and many handsome blossoms of them have I seen in his greenhouses. Would other orchid growers please tell us how they get along with them? As *Odontoglossum phalaenopsis* belongs to the same set, I should like to hear of it too. I remember Mr. Gray at Mr. Corning's, of Albany, some years ago gave me a distressful account of it, nor did I hear any more sanguine report of it at Mrs. Morgan's, New York. But come back with me to the greenhouse and lift and smell that little darling, *Oncidium cheirophorum*, and get the orchid fever: and then behold these brilliant, fiery blossoms hovering over the tufts of fleshy deep green *Masdevallia* leaves. Brightest among them are the erubescens variety of *ignea* and the magenta *Lindeni*, and rarest (in blossom) *Backhousianum*, which has large, fleshy, long-tailed blossoms, in form and color somewhat similar to those of *Chimera*. *Sarcophilus Fitzgeraldi*, a rare Australian orchid, has racemes of waxy white flowers whose sepals and petals are barred with purple, and the lip blotched with yellow.

EDITORIAL NOTES.

PRITCHARDIA GRANDIS.—The Palm recently figured in our magazine is *Licuala grandis* of Wendland.

ROSE, DUKE OF CONNAUGHT.—Mr. Halliday believes the Duke of Connaught will supersede *Jacqueminot*; it is more double, far more florif-

erous; its flower is large, of a fine bright red, and its buds long and well-shaped. For forcing, or out-door cultivation, it is a great acquisition. The Pearl is another of this class, not so large a rose, but of a beautiful flesh tint, admirably adapted for winter bouquets. The French rose known as *Perle des Jardins* being probably referred to.

SEEDLING AZALEAS.—It does not take so long as it is often supposed to raise flowering plants from seed of *Rhododendrons* and *Azaleas*. Col. Wilder, who continues actively his work of hybridizing and crossing flowers, at a recent meeting of the Massachusetts Hort. Society, exhibited five plants of *Azalea Indica*, raised from hybridized seed, and of remarkable growth, the largest being a foot high at one year from the seed. The leaf stalks and the under sides of the leaves of some of the plants were reddish, like those of *Rhododendron*. There is little doubt but they will flower next year.

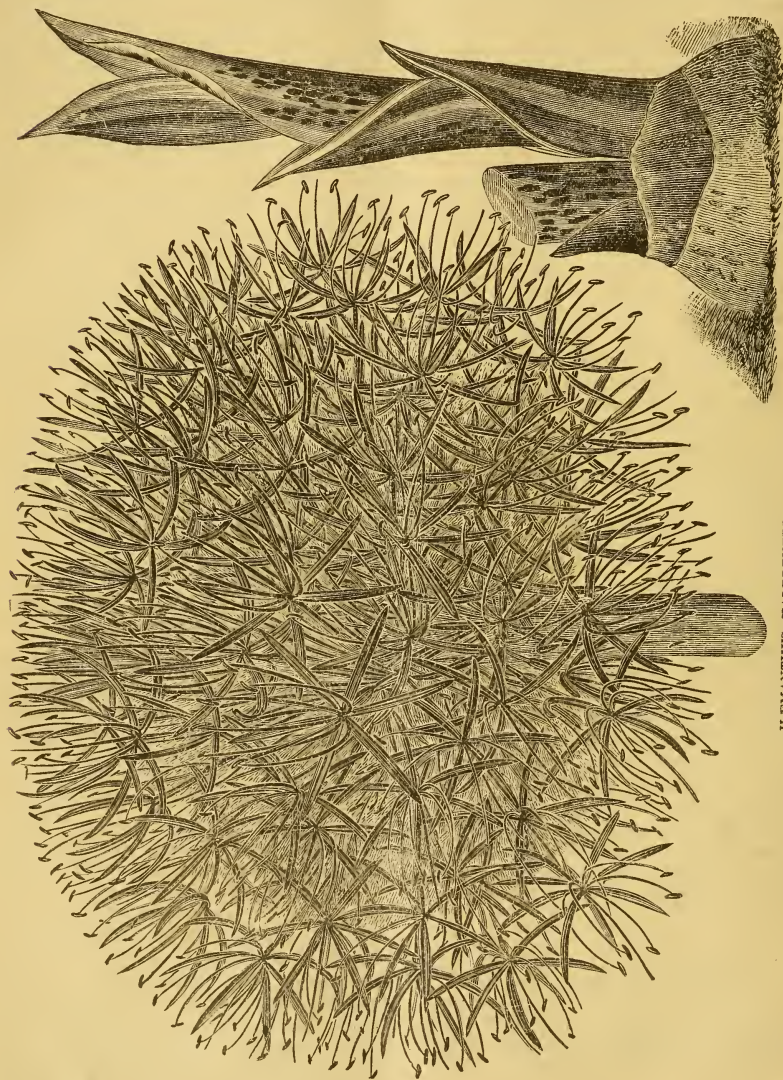
There is yet much to be done in the way of hybridization of these plants. The East Indian *Rhododendrons* are too tender for our climate, but are fragrant. It would be a grand thing if we could give this property to our pretty kinds.

NEW OR RARE PLANTS.

HÆMANTHUS KALBREYERI.—This, we suppose, rendered into English, would be "Mr. Kalbreyer's *Hæmanthus*." But it does not mend the matter much. The name seems hard, but after all should Mrs. Kalbreyer happen to be a leader of fashion on Walnut street, the ladies would not worry much over the hardship of remembering the name. It is no harder to remember than scores of names of people we meet in everyday life. Perhaps it is easier to remember a hard name that is fashionable than an easy one that is not in the lower world. But the plant is not English, but African, and hence has no English name,—and were we to give its common name, if the Africans ever had a common name for it, it would not perhaps help the matter very much.

But it seem to be a very pretty thing,—one of the many pretty things introduced to gardens by the enterprise of Mr. Wm. Bull, of Chelsea, London. Its showy inflorescence is of immense size, a single head often producing upwards of a

hundred of its attractive flowers which are of a glowing color. It is closely allied to *Amaryllis*, *Brunswigia*, and other well known African bul-



HÆMANTHUS KALBREYERI.

are brightly colored, while the golden anthers | bous plants, and requires to be treated just as we
have a pretty effect in contrast with the mass of | do others.

SCRAPS AND QUERIES.

FLORAL DESIGNS.—“C,” Boston, Mass., says: “I send you by mail a copy of the *Boston Traveller*, wherein a notice is inserted of certain floral designs originated by me. If you would make some comment in your journal about the same, I would be most thankful to you.”

[This *Boston Traveller* wandered in a wrong direction. It did not come before us. We refer to the note to say the editor regards it as his duty to the readers to keep them informed of anything novel, at all times.—Ed. G. M.]

GREENHOUSE CORRESPONDENCE.—So much interest has been developed in the matter of steam heating for greenhouses, that we have been led to defer some valuable papers on other subjects from esteemed correspondents, which will, however, soon appear.

CARNATION “BEAUTY”.—E. C. Hames writes: “I send by this mail a new Carnation; a sport from the well-known variety named ‘Beauty.’ In color it resembles Firebrand, but is not so intense or glaring. I send also one of Beauty, showing the difference.”

[And we may add that it is far superior to the original.—Ed. G. M.]

FUMIGATING CONES.—From T. T. Southwick, Rochester, New York, we have samples of this excellent idea. Tobacco is so arranged as to

look like spools of cotton, and are readily ignited, and so prepared as to give out much smoke and little heat. Amateurs with a few plants, placing them under barrels or boxes, will thus be enabled to fumigate them without much trouble. One which we tried under a barrel sickened the insects, and a second dose finished their account with life. It is better to have two doses, than one so strong as to risk the plant's health.

A DOUBLE CATALONIAN JASMINE.—“R. L. B.,” Des Moines, Iowa., writes: “I have a *Jasminum grandiflorum* that shows a tendency to double flowers, having two rows of petals, of a very firm texture and very strong fragrance; one flower in a room being almost sickening to such people as cannot endure a powerful perfume. I want to know if there is any process of cultivation or treatment that will increase this tendency to doubleness in this or any other plant? My Jasmine is as double as any I have yet seen of double *Bouvardia* Alfred Neuner, which, with me, has not as yet shown over two rows of petals.”

[This will be a valuable variety, if its habits can be fixed. Cuttings from that part would probably secure it. Unfortunately this species rarely seeds under culture; or if a few grains of pollen could be found and placed on the stigma of an ordinary form, the progeny would be in the double direction. Perhaps if care were taken to artificially pollinize the flowers, they would be fruitful.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Last season, during the prevalence of the unusually hot summer weather, the pear trees in the writer's orchard had the upper half of most of the leaves turn brown as if scorched. The diagnosis of the trouble indicated that the moisture from the leaves was being drawn faster than the roots could supply it. The best remedy seemed to be to keep the trees as cool as possible. When the hand was placed on the trunks it seemed warm. In the normal condition the bark

stems cool, even on the warmest day. To cool this bark the trees were at once lime-washed. This seemed quite cool in comparison with bark not white-washed. Though there were many succeeding hot days, there was no more of the leaf-browning. It was remarkable how well the trees kept through it all. This season the trees look wonderfully well. The bark of all the trees white-washed, have a smooth, succulent, healthy look, such as all who know a healthy tree when they see it, love to look upon. This question of coolness enters largely into successful culture. It is because the injurious effects of

high temperature in the soil is checked, which gives one of the great advantages to the grass culture of orchards.

The time when Currants and Gooseberries mildew and drop their foliage is at hand. Some have found a mulch of salt hay to be good against these troubles, but, in fact, anything that cools the surface, and thus helps to keep the atmosphere about the plants, is good. A heavy mulch of old corn-stalks we have found to be excellent help to success in growing these fruits.

In the fruit garden, if trees set out last fall or spring do not show signs of growing freely, cutting back a portion of the branches will make a great difference in their favor. It is a great point with good fruit-growers to have all the branches in a tree of uniform vigor. This can be gained by pinching off the growing points of the stouter ones, leaving the weaker ones to gain strength by the check to the others. Where the branches are likely to be too thick, some may be taken out while green, instead of waiting till winter to do it; not forgetting, however, that a loss of foliage is, in some degree, an injury to the tree; and, that as little of this should be done as is consistent with necessity. Some recommend trees to be pruned in summer, because the wounds heal better then. It is true the wound does heal better, but the loss of so much foliage is an injury not compensated by the healing of the wound. However, where the trees are young, and the branches to be cut away but a small fraction of the foliage, the injury is little, and the summer trimming is thus a gain. Nursery trees are best served in this way. Strawberries, Raspberries and Blackberries are "summer pruned" chiefly by thinning the suckers and runners. Strawberries are often grown in beds, and the mass of runners suffered to grow together as they will. This is the best way for parties who have little time to give to their gardens. When grown in hills, or with the runners cut off, something is necessary to place between the rows or the plants, in order to keep the fruit from getting gritty after rain. When they are in beds, the fruit keeps cleaner without much difficulty. But with this plan, the runners should be thinned out at this season of the year, leaving them only about three or four inches apart. Of course, we weed these Strawberry-beds; a large part of the runners should be treated as weeds and taken out at the same time. Raspberries and Blackberries should be

served the same way. All the suckers not wanted to bear next year, should be taken out as they appear. If the kind be valuable, the young offsets taken up may be transplanted any time through the season, by well watering and nipping out the young tender tops. About the end of the month it is often the practice to clip off the growing ends of Blackberries and Raspberries. It is said to stiffen the canes, and it renders stakes to support them in a measure unnecessary.

In many amateurs' gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The Pea is a cool country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They need support. All Peas grow better and produce more when grown to stakes. Bush Beans may be also sown for late crops. A very deep, rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them to the poles as they grow. The poles should not be too high—about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

The Lettuce is another cool country plant. It can only be grown well in hot weather when in very rich and cool soil. For winter use, Beets are occasionally sown now, and also Cucumbers for pickling purposes; but not often; and, at any rate, it must be attended to early in the month. Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but many cultivators, who grow for size and quantity only, believe they have the best results when growing them on the level ground. Celery is the chief crop requiring attention. The great point is to get short, thick-growing varieties, as the long kinds require so much more labor to blanch. The Boston market variety is, therefore, popular, and is really a very crisp and nutty-flavored variety. After so many trials with different ways of growing them, those who have their own gardens—amateurs, for whom we write—find that the old plan of sinking the plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow-manure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Soap-suds, as well as salt in mode-

rate doses, is usually a wonderful special fertilizer for the Celery plant.

Late Cabbage is often planted in gardens between rows of Potatoes, where it is an object to save space. Some fancy that the Cabbage is better preserved in this way from the Cabbage-fly, which, they say, prefers the Potato, but on this point we are not sure. We do not think the Cabbage does quite as well as when it has the whole ground to itself; but of course a double crop could not be expected to be quite so fine.

Among the new troubles in vegetable-growing is the appearance of the Asparagus beetle, *Crioceris asparagi*. As in the case of the Potato beetle, it is the larvæ which does the most injury.

COMMUNICATIONS.

A NEW GRAPE-VINE---THE COCHIN-CHINESE, TUBEROUS-ROOTED VINE.

BY ARTHUR F. KNOBLOCH, THIBODAUX, LA.

From an article in the *Cosmos* of April 1st, 1882, I have translated a few extracts which you will find below, and which you are at liberty to print.

Of all the grape-vines which, since the appearance of the *Phylloxera*, have been brought to the public notice, none has attracted the attention of grape-growers as much as the tuberous-rooted vines which were brought from Soudan by the late Mr. Lecard, on his return from his travels in Central Africa. Unfortunately, the seed, which were distributed somewhat late, came up so imperfectly and made such slow growth that it has been impossible, thus far, to test fully the merits of this interesting recent introduction.

Should the seed, still remaining in the hands of the Lecard family, fail, when sown at a more favorable season, to give a more satisfactory result than that obtained from the sowings of last year, there is ground to fear that many years may elapse before practical experiments can be made with this new variety of the grape-vine, so great is the difficulty of procuring a fresh supply of seed from the source whence Mr. Lecard obtained his.

In view of these facts, we are pleased to learn that Vilmorin and Andrieux have, in an altogether unexpected manner, just received, not from Soudan, but from Cochin-China, a small invoice of seeds precisely similar to those

brought by Mr. Lecard. They doubtless belong to the same botanical genus as the latter, and as Cochin-China is easier of access than Soudan, we feel confident that if, when tested, this new vine should justify the expectations which have been formed in reference to tuberous-rooted vines, there will be little difficulty in obtaining, at comparatively short notice and small cost, enough seeds to test them on an extensive scale.

Mr. Martin, head-gardener of the government at Saigon, and to whom is due the honor of the first introduction of those seeds in France, in a recent letter spoke thus of this vine:

"I strongly recommend this wild-growing vine. It may prove a highly useful addition to the vines cultivated in France. The vine is tuberous-rooted. It loses its leaves, and its stalks die every year, and each year new ones spring from the tubers. One vine may yield one hundred kilogrammes of grapes. This it will not do as a general rule, but I have seen vines which bore that quantity. I found bunches which weighed four kilogrammes. This vine grows in every section of Cochin-China. It could, I think, be cultivated in France in the same manner as the ordinary vine is trained in some countries, that is either on trellises or stakes."

APPLE AS A STOCK FOR SECKEL PEAR.

BY W. H. BURFORD, INDEPENDENCE, MISS.

Perhaps it is not generally known that the apple is good stock on which to work the Seckel Pear. A tree on this place budded in 1860 (twenty-two years ago), three feet from the ground, is healthy, and has not failed of a crop in the last seventeen years; besides, the fruit is larger than any of that variety I have seen on the pear or quince, specimens often measuring seven and a half inches round. A young tree, budded at the ground on a one year old seedling apple, has had but three seasons' growth, is ten feet high, and well branched to within two feet of the ground, and is now in bloom—one cluster.

Nurserymen know full well how difficult sometimes it is to get the Seckel started off thriftily either as a standard or a dwarf. It would be interesting to know if there are other varieties adapted to the apple. Some I have tried are not.

EDITORIAL NOTES.

THE SILK WORM MULBERRY.—The mulberry has male and female flowers in separate flowers on the same plant. But different trees vary in the proportions of each—some trees having wholly male flowers. *Morus multicaulis* is a variety of *Morus alba*, almost always with male flowers—always, for anything we know. Hence it never seeds, but is propagated wholly by cuttings. Some years ago it became infested with a disease similar, if not nearly the same as infests the American Plane or Sycamore, and this disease continues to this day. Silk worms fed on these leaves become diseased. This was the chief reason of the failure of the old "Multicaulis" scheme. The seedlings of *Morus alba* are usually free from disease, and make healthy food for the silk worm. Although *Morus alba* signifies white mulberry, the fruit is sometimes black or amber color. *Morus Morettii* is but a variety of this species, as also is the Russian or Mennonite mulberry of the West. The danger is that in propagating these from cuttings or layers, some disease may be also propagated. We should recommend those having the interests of silk culture at heart, to rely chiefly on seedling white mulberry.

CONCORD GRAPE SOUTH.—Mr. T. V. Munson says the Concord Grape is useless in the South. It soon withers and dies.

BACTERIA IN FRUIT DISEASES.—Mr. T. V. Munson suggests that species of the "stink bug" (*Sinea*) may carry bacteria from decayed fruit (and perhaps the decayed matter with the bacteria), to healthy branches, puncturing which the pear blight and other troubles may originate, as artificially produced by Prof. Burrill.

TABLE GRAPES IN THE SOUTH.—The South excels in table grapes, but Mr. T. V. Munson thinks has not produced one that will compare with the best Northern varieties. If this is the general impression South, we think little must be known of Dr. Wylie's efforts. To our mind some of his seedlings rank with the best in the North. This modest, patient South Carolina worker has scarcely received the good tributes to his memory, his eminent services to Pomology while living, deserve.

A PROMISING NATIVE GRAPE TO IMPROVE.—Mr. T. V. Munson says: "There is a wild grape growing in the sandy ravines of the Texas "Pan-

handle" and elsewhere in the West which produces heavy crops of fair-sized, well-flavored fruit without rot, foxiness or hard pulp, which grows upright like a bush, without tendrils or support. Botanists term it *Rupestris*. From this, fine varieties might be obtained by hybridizing with such varieties as Black Eagle or other upright fine kinds, which would give us a valuable tribe, requiring no stakes or trellises."

WINDSOR CHERRY.—This variety, raised some years ago by Mr. James Dougall, of Windsor, still maintains the reputation of being an excellent late cherry.

CAROLINE RASPBERRY.—This is a yellow variety of the ordinary black-cap. None of the light colored kinds in this class have proved permanently popular. It remains to be seen how this will stand.

RAISING SEEDLINGS.—Most of our best grapes are accidental seedlings. Deliberate attempts to raise seedlings have not been encouraging. The late Dr. Miner had 1,500 seedlings, and selected some of the best. The selections have good points, but this is about all.

MINER PLUM.—Prof. Budd believes that under some conditions of culture the Miner Plum may be deficient in stamens, and comparatively unproductive—when a more staminate variety in the orchard would assist the fertilization.

HOVEY'S SEEDLING STRAWBERRY.—From accounts we see in various quarters, this famous old variety is yet under culture in some places, producing admirable crops and positively refusing to "run out."

BEST SOIL FOR THE RASPBERRY.—Many reports of the failure of this or that variety comes from bad culture. The raspberry is a native of mountains, or cool, Northern climates. Hot, dry soil is its abomination, and it is always on the alert to "run out" in these situations.

THE CODLING MOTH.—The greatest enemy to apple culture is the Codling Moth. Mr. W. C. Raymond, of Dickinson's Landing, contributes the following useful hint to the Canadian *Horticulturist*: "I set two traps on the 20th of last August and caught over one thousand moths in one night. The trap is a glass lantern set in a tin pan of water an inch or more deep. The light attracts the moths and they fly around the lantern, and when they strike the water they

are caught, as they are helpless when they once get in the water. In trimming the lanterns use less or more oil, according to the length of time you want them to burn. They should be set on something two feet or more from the ground. I intend to use a number of the traps this season, commencing when trees are in blossom, for the moths are numerous and destructive."

SUPERIOR CANADIAN APPLES.—A correspondent of the Canadian *Horticulturist* finds Duchess of Oldenburg, Brockville Beauty, and Fameuse, as thoroughly reliable apples in the severe winter climate of Canada.

PREMIUMS FOR CELERY AND ONION ESSAYS.—D. Landreth & Sons, of Philadelphia, offer \$100 in five premiums for short essays on celery culture, and the same amount of essays on onion culture. This ought to bring out the new ideas, of which there should be a good many lying around in obscure corners.

AMERICAN VEGETABLES AND FRUIT.—The English papers are, some of them, discussing whether vegetables are more used or more grown in England than America. One of them has a correspondent who writes under the belief that his country does not equal America, and backs himself by the following opinion:

"The reappearance upon our tables of Sea-kale and Asparagus—our only two eatable green-stuffs—naturally raises once more the perennial question, Why have we in England no vegetables? To doubt the fact is impossible—at least to anybody who knows what real vegetables are like. 'Sir,' said an American stranger at a restaurant in the Strand one day, 'Sir, this is the one thing you can raise in your country and we can't in ours—a mutton chop; but then you never tasted Green Peas in all your life.'"

It seems to be forgotten that the "intelligent traveller" is often the last person to know what he is talking about; and this "American stranger" is evidently no exception to this rule. As a pea-growing country America will not begin to compare with England. There are other vegetables which the English can raise far better than we can. But if we are to take things as a whole, we fancy the palm will be given to America—at least to the Northern United States and Canada. And there is no doubt but, setting aside a few items as potatoes, cabbage, turnips, and a few cool country kinds, the use of vegetables, as well as of fruits, is much more general in the new than in the old world.

THE NEWTOWN PIPPIN APPLE.—The Orange

Co. (N. Y.) *Farmer* says: "The GARDENER'S MONTHLY notes that considerable quantities of the Newtown Pippin apple are yet received in England from this country, and observes that 'Probably the once famous spot on the Hudson River where it found itself at home, still keeps up a good supply for England.' We assure the MONTHLY that such is not the fact. The long ago famous Pell orchards have fallen into decay, the scattering trees of Newtown Pippin still standing are moss-grown, and the fruit is so marred with black patches as to be practically worthless. Yet there are occasional trees and some young orchards of the variety in southern Ulster that are doing well. The town of Esopus, in which the once famous Pell orchard is located, is no better than a great many places in Ulster County and Orange for the successful cultivation of the Newtown Pippin. The tree does not require any peculiarity of soil, but Mr. R. L. Pell, with abundance of leisure and means, had his orchards well cared for by directing his laborers when, what and how to do. And he made money by the operation, as any other orchardist can. The variety has not 'run out,' but with the proper ordinary attention due to all fruit trees, the Newtown Pippin can be grown in as great perfection as ever. It is a very profitable variety to plant, and should be largely planted."

TOMATOES TO THE ACRE.—In Harford County, Maryland, two hundred bushels of tomatoes is considered a fair yield per acre.

PEACH CULTURE.—At a recent meeting of a farmer's club near Lancaster, Pa., as reported in the Lancaster *Farmer*, Joseph C. Stubbs had better luck when he planted in fence corners and gave them no care. He knew an old nurseryman that planted some peach trees in fields and some in fence corners, and the ones in the fence corners did the best.

These experiences are often met with and used in illustration of a supposed truth that neglect is better than good culture. Nothing can be further from the fact, except as one may say that what is often supposed to be very good cultivation is really culture of a very bad kind. In the first place the peach of all trees needs all its roots in order to perform properly all its duties to its owner, and if our system of cultivation destroys half of these at a time when the plant needs them all, it is bad cultivation. In a fence corner the tree has at least this good ad-

vantage, that it has the benefit of all its roots, none being disturbed. Again, the peach tree loves plenty of nutritious food, so long as it is not allowed to over-bear. In orchards the owner is very apt to be niggard of necessary food. If he does keep the grass down, and puts on a little manure, like as not he will make the tree share it with some other vegetable crops. Yet if he keeps his hoe harrow going continually, cutting off half the roots and letting the potatoes get the food the other half ought to get, he still thinks his peach orchard well cultivated. Indeed, in many cases the peach grower has no other idea about a tree being well cultivated, than the fact that he sometimes calls a hoe harrow a cultivator. They were well cultivated because he kept the "cultivator" running! The peach tree in the fence corner has the advantage of the rotten weeds and trash often thrown there—of old briars and weeds that grow and rot there—of the wash from the higher ground which the rains bring there and can carry no further. In short, the fact that a tree so often does well in a fence corner, and so bad under "cultivation," is simply that it has found good cultivation in the fence corner, and bad cultivation in the field.

GRAPES IN AUSTRALIA.—The Phylloxera is sadly destructive to the vineyards of South Australia.

FILBERTS IN CALIFORNIA.—Filberts are grown somewhat extensively in California, but great trouble is found with the worm in the nut. It is the larvæ of *Curculio nucum*.

THE TOBACCO CROP.—It was noted in these columns recently that after a careful investigation as to the influence of tobacco on students, some of the academical bodies of Europe had refused to admit students addicted to its use. Since then an investigation has been had at West Point, with the result that its use is to be hereafter forbidden to the cadets. But we have not heard that there has been a less acreage planted, or that the growers are seriously disturbed about the final disposition of the crop.

OLIVE CULTURE.—This tree, grown chiefly for olive oil, is particularly adapted to dry climates. At a meeting in Australia recently, there seemed to be the same varying experience as among their fruit growers—some make it pay wonderfully and some lose money. Mr. T. Hardy, of Adelaide, said many people were deterred from planting olives on account of the time it took to

grow trees. To lose the use of the ground for eight or ten years seemed to be a long time, but he suggested a plan by which the trees might be grown and the ground made use of at the same time. He would plant the largest-worked trees to be obtained, at about seventy to the acre, and fence each tree round with a guard by driving in a circle of barked wattle or mallee stakes six or seven feet long at eighteen inches from the tree, and from four to five inches apart, and securing them round near the top with fencing wire in two or more rings. The ground could be cleaned round inside the guards once or twice a year, by lifting one or two stakes, or as may be required, and a space of one foot round outside the stakes might be dug with the spade. The land in this way could be pastured with sheep or cattle from the first.

PEACH CULTURE IN AUSTRALIA.—By the Melbourne papers we learn that, "Peach growing will in this neighborhood soon be a thing of the past. The blight seems worse than ever, and is communicated to plums and apricots growing in the vicinity of the affected trees."

LARGE SECKEL PEARS.—A correspondent of the *Journal of Horticulture* makes the astounding statement that he has seen Seckel Pears in Sussex, England, as large as Louise Bonne de Jersey, and he writes of Winter Nelis as if it be smaller than the Seckel.

SUBSTITUTE FOR COFFEE.—Substitutes for tea and coffee have not been great successes. Nothing has replaced the originals in popular estimation. It is said that an African tree, *Sterculia acuminata*, is the most promising of all proposed substitutes. It has more caffeine than coffee—but whether public taste is equal to the chemists' report, remains to be seen.

THE ROGERS' GRAPES.—It is remarkable how long these old varieties hold their own. Three that have been somewhat neglected are rising in popular estimation. These are Lindley, Herbert and Gaertner.

CHERRY STOCKS.—It is found by experience all the stronger growing cherries do as well at least, and many better, when growing on the Mahaleb Stock; but the Early Richmond, Morellos, and others of that class, have finer and more abundant fruit on the Mazzard wherever the soil is suited to the Mazzard stock.

PINE APPLES.—The Pine Apples we buy as im-

ported from the West Indies are cut before maturity. Few persons know how enjoyable a truly ripe Pine Apple is. This is one advantage of cultivating them. In our country it is not near so difficult to grow them as in Europe. Their culture ought to be more common. We pen these lines after viewing some fairly grown specimens on exhibition at the April meeting of the Germantown Horticultural Society.

MASSACHUSETTS APPLES.—The Baldwin, Roxbury Russet and Hubbardston Nonesuch, are among the most profitable Massachusetts Apples.

SECKEL PEAR.—A correspondent of the London *Journal of Horticulture* notes that Dr. Hosack, the noted New York botanist, in a lecture before the New York Horticultural Society in 1819, remarks that "the Syckle Pear has been some time in cultivation, and has all the characteristics of a new variety."

QUINCE CULTURE.—At the Gettysburg meeting of the Pennsylvania State Horticultural Association, it came out in the discussion that Quince of almost all fruits was greedy for manure. It is useless to attempt to get profitable Quince crops from poor ground.

SCRAPS AND QUERIES.

SULPHUR FOR FUNGUS.—We often have letters about fungus attacks. It should be generally known that powdered sulphur—"flour of sulphur"—is generally successful in destroying all of these minute vegetable organisms.

FLAT CHINESE PEACH.—May 18th, there came from Mr. P. J. Berckmans specimens of the Peento, or flat Chinese Peach. They are about the size of the Alexander or similar early Peach, but seem as if pressed down and widened laterally. The stone is also wider than long. They are also like the other early ones, partial clingstones, being juicy and of good flavor. Mr. Berckmans specimens were grown in tubs, under glass, and put out on first of April. In Florida it has already become popular, ripening there on the 1st of April.

MANURING IN THE WEST.—"A New Subscriber" in Iowa says: "I like the *GARDENER'S MONTHLY* for some things. It is a very peculiar paper, and unlike any that I have seen. I shall proba-

bly remain a permanent subscriber, though it seems to me that many of its practical recommendations are of no value at all out here. For instance, the whole burden of Eastern men is manure, manure, manure. The trouble here is we have all the manure we need and more. Our virgin soil is one vast bed of manure, and we could spare you half, and still have all we need."

Our "new subscriber" may remember that the editor of the *GARDENER'S MONTHLY* is personally acquainted with Iowa, and all the other Western States, and knows what is good there just as well as do the people of Iowa themselves. In regard to this manure question, we have heard it before, and now know people who use manure heavily, who not twenty years ago boasted of the "virgin soil," as our correspondent does now. Fearing, however, our correspondent might not be disposed to place as much weight on the editor's personal experience in Iowa, as on some one now resident there, he glanced through a series of Iowa exchanges, and finds the following, with the signature of John G. Stradley, Cresco, Howard County, Iowa, attached to it. It seems to cover the whole ground:

"The great majority of the farmers of Howard county have tried wheat farming as a business, and for over twenty years they never had a failure. For the past four years wheat has failed, and every farmer who stuck to it has lost his land and everything else he had made, while the men who made a business of stock and dairy farming are rich, and those who changed before it was too late are independent. We have had a chance here to compare the two systems and we find that wheat farming impoverishes the land, while stock farming enriches it. The wheat farmer is always a borrower; the stock farmer nearly always a lender. The wheat farmer is dependent, while the stock farmer is independent."

EUREKA PEACH.—"B," Independence, Miss., writes: "I send you by mail a specimen of the Eureka Peach, which originated near this place, and came into bearing in 1878, and is said to have ripened on more than one occasion by the 15th of May. The first fruit ripened this season on the 20th, but was doubtless retarded by the unusually cool weather we have had for the last fifteen days. Amsden, Alexander; Briggs' May and Waterloo are just beginning to color, and I think will not be ripe before the 30th of the month, although they have two degrees advantage in situation as to temperature, as they are in the valley and the Eureka on a high eleva-

tion and much exposed to the cold winds. Would be pleased to have you, if you deem it worthy, give the *Eureka* a notice in the *GARDENER'S MONTHLY*."

[This Peach, like most of these very early ones, is a cling-stone, not quite as small as some of the very early ones, oval and pointed, and of a pretty bright red on the sunny side. It reached Germantown on the 22nd of May. It

was not sweet, though the abundance of juice was very pleasant. The lack of sweetness we attribute to its being gathered before being quite ripe in order that it might carry well. On the whole it may be regarded as a promising variety.

Five days after this was written, two more came, with the suggestion from the sender that the others were not ripe. But the ripe ones came rotten.—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

AGED TREES.—We think of the giant Sequoias of California, and their great age, with wonder; but the ages of English trees compare with them. There is a Yew tree at Brabourne, in Kent, which was perhaps a young seedling when the Queen of Sheba paid a visit to Solomon, and was 1,200 years old when Cæsar landed on Britain's shore. There are numbers of Yew trees in England which are undoubtedly much over 1,000 years old. In days when the arrow furnished the chief wooden walls of old England, the Yew furnished the bow-wood.

END OF A HISTORIC ELM.—"The Parson's Elm," the largest and handsomest tree in Enfield, Connecticut, dating back beyond the memory of living man, was laid low last year by its owner to get thirty-five cords of fire-wood out of it.

Though one cannot dispute the right of an owner to do what he likes with his own, it is to be regretted that these monuments of the past should one by one disappear.

A WALNUT GROVE IN WISCONSIN.—It is announced in a London paper that a farmer in Wisconsin planted a "grove" of black walnut twenty years ago, and recently sold it (the grove) for \$27,000. Can any one give us the details of this transaction? As it is, the paragraph is scarcely worth the paper it occupies. Was the land valuable when the trees were planted, and does the \$27,000 represent the value of the walnut trees? In many places land worth \$5 per acre would increase enormously in

twenty years, though not a tree grew on it. But if the "grove" was not very large, the timber here may have given the value.

POOR LAND FOR FORESTS.—The daily and other "secular" papers, which give us alarming and not always intelligent articles on Forestry, tell us that wherever there is land too poor to produce farm crops, it should at once be devoted to forestry. It is such views of forestry which lead the community to believe that it is the work of a long life-time to plant trees. Intelligent forestry will get up a paying crop of timber in twenty-five years, but for this the best land and not the poorest should be chosen. It will never pay to plant a forest on poor land.

TIMBER IN MICHIGAN.—*The College Speculum* says: "Dr. Beal read a paper on 'Some of the best trees to grow for timber in Michigan.' Our most valuable forest trees found in abundance were black walnut, white pine, white ash, white oak, shagbark hickory, black cherry, tulip tree, rock elm, sugar maple and arbor vitæ. Of these white oak, tulip tree, rock elm, arbor vitæ and sugar maple grow too slowly to be desirable trees to plant for timber.

"The doctor had been Professor of Horticulture for nine years, but he could not think of any effort of his which gave more satisfaction in proportion to the cost than a couple of acres planted with a large variety of the seeds of trees. The interest in this little arboretum will continue to grow as the trees become larger. Some trees of *Catalpa speciosa*, nine years old, had been moved when three years old. They are now sixteen to twenty-four inches in circumfer-

ence a foot from the ground, and about twenty feet high. They have grown in an open place. They are as hardy as any of our oaks. They split down a little like trees of American elm. Some white ashes have grown six years where the seed was planted. Many of these are each eighteen feet high and from eight to nine and a half inches in circumference one foot from the ground. From the start the white ashes have been straight, clean and handsome. Some black walnuts have grown five years where the nuts were planted. Many of them are fifteen feet high and measure seven and a half to eight and a half inches around, one foot above the soil. They are beautiful trees. Of forest trees indigenous to Michigan, all things considered, where the site and soil are suitable, he would select to plant for timber, black walnut and white ash. He would plant in some *Catalpa speciosa* to remove for fence posts before the walnuts or ashes were removed."

THE FARNESIAN ACACIA.—Important in reference to their value in rural economy are the *Acacia Farnesiana*, which produce the fragrant flowers so much used in perfumery, and the *A. homalophylla*, the wood of which is highly prized and dearly paid for by manufacturers of fans, etc.

In every Moorish garden in North Africa, there can be seen a few trees of the *A. Farnesiana*, of which the flowers are gathered by women and children for family use; whilst in France and Italy it furnishes a not unimportant article of commerce. In the district of Cannes alone about 36,000 lbs. of flowers are yearly

produced, for which the perfumers pay from fifty to seventy-five cents per pound, which would amount to about \$45,000. One tree furnishes, according to age, from one to five or more pounds; and one acre, planted with about 800 trees, would produce in a few years a notable increase of income to many of our farmers, some pin money to their wives, besides making farm work and farm life both pleasant and profitable to their children. But this pleasant prospect cannot be realized as long as the extraction of perfumes is not undertaken, because the acacia flowers, like most of those flowers whose perfume is extracted, must be treated while fresh and on the spot.

Is it not to be regretted that such a profitable and important branch of horticulture is neglected, and that the ambition of our landholders and rich men goes rather in the direction to produce fast horses than to introduce, encourage and foster such industries, which would give employment to thousands of women and children, and in this wise be more conducive to the welfare of the community in which they live, than if they raised a horse that could make a mile in one minute? And what will and can this society do in this desirable direction beyond discussing the question and perhaps recommending a remedy; or will not that part of the press which is usually wide awake when the political or commercial interests of the commonwealth are under discussion, agitate in this direction and help to produce a good crop from a kernel of suggestion? It thrives any where inside the frost line.—*Pacific Rural Press*.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

DRONE BEES ON THE WING—A GREAT MYSTERY.

BY W. H. BURFORD, INDEPENDENCE, MISS.

How often in boyhood days, and yet still oftener since I have been a man, have I been puzzled when in the woods on hearing a sound like the hum of a swarm of bees; indeed I was so sure of it I have frequently hunted the woods

for miles, thinking that the much beloved honey-makers were but a few steps ahead, but yet could not be overtaken. Having noticed several years since that this humming noise was only heard in the spring season, I came to a conclusion that it was the drone bees, which swarm above the tops of the trees by thousands, and have been confirmed in this belief by each subsequent investigation. The noise may be heard anywhere in the vicinity of an apiary, and commences at from nine to ten

o'clock A. M., and continues until three or four P. M., or during the time the drones are absent from the hives, and at no other time. Now, sir, what I want to know is, is this fact known to the scientific world? I have read many books and papers (but not all) relative to the natural history of the honey bee, yet I have never seen it mentioned. Sometimes we think we have made an important discovery, and we afterwards learn that some fellow discovered the same thing a hundred or a thousand years ago.

FREMONTIA.

BY A COLLECTOR.

As to the *Fremontia* ripening its seeds at the highest altitude I mentioned, it does so in all probability; otherwise how does it propagate itself? I never looked for seed there, because I could get it nearer home.

The *Dendromecon rigidum* grows near here. The handsomest plants I know are on the plains near the hills, but it also grows pretty high up. The highest altitude I know of its occurring, is between 3,000 and 4,000 feet above the sea; scarcely high enough for it to be safe for Northerners to try it, but it is credited with growing at Clear Lake, which would give some hopes of its doing well. Southerners, if they care for such things, could raise it. It ripens seed here. It stands transplanting; at least the plant I bought this spring is growing.

Cowania Mexicana has never been found in California. The "*Botany of California*" says: "Mountains of the Virgin river, California, Fremont (probably in Nevada)." But the Virgin as I well recollect, is in Utah. We have no Virgin river in California, "also in the mountains of northern Utah and New Mexico." From its habitat it will most likely prove hardy with you.

I am glad to see that my article has drawn the attention of at least one. Perhaps the fowls of the air may yet roost in the branches of my Mustard tree plant.

EDITORIAL NOTES.

LAWS OF THE WEATHER.—We have occasionally observed that the laws which regulate the weather, are precisely like those which regulate the flow of hot water in a boiler, and there is no more reason why we may not know all about

one as the other, if we can get at the facts in detail, as we can the facts in a boiler which we use for hot water heating. We know that the current is not caused by the water made light by the heat under the boiler, but because there is a heavier pressure from the colder mass which flows into the boiler, and forces that which has been made lighter out of the way. It is a simple act of gravitation. That which is heaviest goes to the bottom, and the lightest is pushed up to the top. A stone sinks because it is heavier than water; a stick swims because the water is heavier than the stick. Atmospheric currents are caused in the same way. The sun lightens the tropical atmosphere, and the heavier northern rushes in to displace it. The sun warms the tropical waters, and the cold Arctic current rushes in to force it out of the way, and we have a gulf stream flowing north to fill in the chasm formed by the southward flow of the Arctic water. How wonderful are the purposes of nature! We look on the Arctic ice-fields and deprecate the dreary and awful waste; but without these ice fields we should not have rain or snow or healthful breezes. If we could but study the position of these moving masses of ice, there is no reason why we may not predict the general climate for months ahead. It is just this sort of knowledge Arctic research might bring us. No one cares now about the northern passage, but it is of vast meteorological importance to know that the sea can flow either to the right or to the left as it presses down on what we may now call the shores of the great Island which forms the North American Continent. We have yet an immense number of these facts to gain, but when gained meteorology will become an exact science.

Every one who has looked at this matter in this light, welcomes every arctic expedition. When last summer we learned from one of these expeditions that the immense ice sheet was much further westwardly than ever before, it was known that we might expect a very late spring here, and a correspondingly early one on the other side of the gulf stream. Just how it is every one knows. Here before us is a paper from the Isle of Wight, England, dated April 22nd, and they talk about peas in bloom, potatoes "hoed up for the last time," and "will be ready for market by the first of June." Here in Philadelphia, some eight hundred miles south of the Isle of Wight, we have potatoes scarcely out of the ground, and peas scarcely large enough to

stick—not even the Hawthorn in blossom on this 24th day of May—and all because this immense mass of ice has pressed more heavily than usual against the north-eastern shores of our continent.

The time will come when we shall have weather stations connected by telegraph in these arctic regions; and blockhouses, well provisioned, stretching out from one to another like a chain of forts, and the great arctic problem will be solved, and, there can be no doubt, to the immense profit of all mankind.

TRANSPIRATION OF PLANTS.—Dr. J. M. Anders, of the Philadelphia Academy of Natural Sciences, who has already contributed some valuable papers on the transpiration of plants, gives some more valuable facts in the January number of the *American Naturalist*. He finds that one square foot of naked soil will evaporate six times as much moisture as a square foot of leaf surface; but a forest has twelve times more leaf surface than the earth surface on which the trees grow, and, hence, the evaporation from a square foot of forest-land is just double that of a naked surface. He further finds that, say in the vicinity of Philadelphia, twelve inches of annual rainfall is given off during the leafy season of six months, which is about half the annual rainfall. It would thus seem that trees have very little to do with the feeding of springs. It is sometimes supposed that the trees retain snow, which melts more slowly under the trees than in the sunshine, and that it, therefore, runs slowly into the streams instead of melting rapidly in the sun where the trees are absent; but Dr. Anders shows that the earth under trees is in a very absorptive condition, and that the slowly-melting snow is taken up gradually by the earth under the trees, in order to form the great reservoir of moisture which is to supply the enormous summer demand from the leaves. Another interesting conclusion, bearing on the literature of forests and climate, may be drawn from these observations of Dr. Anders—namely, the trees have to receive this moisture before they can give it out again, and we may, therefore, say trees are rather the result than the cause of a moist climate. We have to look to the evaporating power of the sun on immense tracts of water and the condensing power of polar currents for our chief sources of rainfall, leaving to trees the playing of a very small part in the operation.—*Independent*.

SELAGINELLA VICTORIÆ.—Queen Victoria is botanically honored by having one of the grandest flowers named for her, the famous Water Lily of the Amazon River—*Victoria regia*. Here we have her name associated with one of the lowliest classes, a class which has no flowers at all. It was on account of the apparent want of flowers, that Linnæus named this class of plants Cryptogamia, which may perhaps be explained as that class which perfects its seeds in secret, although, critically, the spore of a fern or Lycopodium by which reproduction is carried on, is different in its nature from a seed. A fern spore germinates, expands, and then the functions of fertilization is effected, and the new growth proceeds from the union; but in the ordinary seed fertilization precedes the formation. A seed is a sort of bud which follows pollinization; a spore is a bud which precedes the act.

To the general observer there is in the appearance of some Lycopodiums and Selaginellas, much in common with pines or other members of the Coniferous class. But the laws of cell growth at once divides them. Wood is made from the gemmation of the cells. In the cells of coniferæ, the last formed of this year will grow next in a lateral direction, and form a new layer of wood around the last year's layer, and so continue from year to year, making an annual layer of wood; but these Cryptogamic plants have no such power of lateral growth. The cells at the end of the growing point live over to next year, as do the cells of the pine, but they only make the new cell growth in the longitudinal direction, and not in the lateral one. Otherwise, cell growth is very much the same in both cases. The underground stem of the fern, Rhizome the botanist calls it, goes on perhaps for an age, making new cells out of the old ones, and leaving the dead ones behind; and just so do the cells of a tree. The last year's cells die soon after the new circle of wood is formed, and all the circles of wood which form the trunk of a tree, with the exception of the few circles near the circumference, are as dead as are those behind the tip of a fern rhizome. If there were a lateral as well as a longitudinal growth; if the stem of a fern could go on thickening from year to year, there might not be so much difference between a Selaginella and a Pine; for with the identity of powers in this respect, there might come differences in the morphological laws which result in the other distinct characters.

There are for all many correspondences in length of several inches, with nothing on it but character between Lycopodiums and Coniferæ. scales; and the fruit in Coniferæ, known as a



SELAGINELLA VICTORIÆ.

As the pine grows it often suppresses its needle- | cone, is but a suppressed branch of such a char-
like leaves and has the young stem often to the | acter. These points often occur in Lycopodi-

acæ. It was indeed this character in the species here illustrated which led us to wander into these comparisons, hoping thereby to instruct the general reader in some usually abstruse botanical points. The ends of what Mr. Bull, the introducer, calls "pinnulets," have the leaves suddenly appressed, as we often see in the pine, and as if the plant had half determined to form a spike or "cone." Of the horticultural merits and history of the plant itself, we will here append what Mr. Wm. Bull says of it:

"An elegant sub-scandent species, introduced from the South Sea Islands. It has a creeping caudex, from which at intervals spring up an erect stem, which lengthens by forming new growths at the point; these stems produce alternate lateral branches of an ovate outline, flat and closely pinnate, like the frond of a fern. The color is a dark sap green, the spikelets and young growth being of a paler and lighter hue. It is allied to *S. Wallichii*, but is a still more elegant plant, and differs essentially in having a long terminal pinnule to each branch, instead of diminishing gradually to the end."

ABIES CONCOLOR AND LOWIANA.—Dr. Masters read before the Royal Horticultural Society the substance of a letter from Dr. Engelmann, relating to these plants, in which the historian of the American Conifers stated, that he had now seen the species *concolor* extensively distributed in a living state from Oregon to Arizona, and especially in California, and that he had only occasionally met with the variety with long straight leaves (the form *Lowiana*). Dr. Engelmann is unable to separate *Lowiana* as a species, but refers it to *concolor* as a variety. In cultivation the form *Lowiana* is much more widely represented than the species.

THE DATE PALM.—A correspondent of the *Gardener's Chronicle* says of the Date Palms: "They do not thrive in regions where they cannot reach water by means of their long strong roots, or where they cannot be watered. The largest Palm forest I have ever seen is at Elche, in the province of Murcia, in Spain. It is many miles in circumference, in a most arid, burnt up spot, but then a small river runs through it; round every tree there is a large saucer or depression, and at intervals throughout the summer the river is turned into these saucers by irrigation canals throughout its entire extent. The trees are grown for profit. They produce ripe edible fruit, which are sold in all the markets of this part of Spain as an important article of food. The Dates, however, are not the sac-

charine Dates we see and eat in the North as a sweetmeat, but a farinaceous dry Date which grinds into flour, and is consumed as such. I was told in Algiers that they cultivate in the desert oases sixty different kinds of Date. I saw very few Date trees in the vicinity of Algiers and along the coast. They are principally cultivated on the southern side of the Mount Atlas, in the numerous oases that are found in the desert within a short distance from the southern basis of the Atlas range.

A COLOSSAL FERN.—Recently a huge stump-fern, *Todea*, writes Baron Von Mueller, was brought away from its seclusion in the Dandenong Ranges, near Port Philip. "After the removal of its hundreds of fronds, the stump-like trunk weighed 2,900 pounds. It required to be dragged by a train of oxen out of its recess, where it may have grown for more than a century to accumulate the substance of its massive stem. This monster fern is to be placed in the conservatory of Melbourne where the mycologist, Rev. Heinrich Tode, so long labored for the Church and for science also, and where his mortal remains are buried. A brisk trade in large *Todeas* ought to arise, as the marvelous specimen at Kew must have attracted the attention of professional and amateur horticulturists for many years after its removal thence from the Melbourne Botanic Garden. Giant *Todeas* may be obtained from South Australia (Mount Lofty Ranges), various places in Victoria, Tasmania, New South Wales, and Queensland, but specimens weighing over half a ton (without fronds) are rare. This colossal fern has also the recommendation of bearing a considerable amount of frost, so that in temperatures like that of Arran it could be grown in the open air. In South Africa it seems never to attain to the enormous weight of extra large Australian specimens."

[*Todeas* are often seen in America collections of exotic ferns, usually kept always under glass cases, as it seems impossible for them to thrive anywhere but in a close and damp atmosphere. In such glass cases however, they thrive amazingly, and those who have them usually feel that they have something to be proud of when they exhibit them to admiring friends.—Ed. G. M.]

SCRAPS AND QUERIES.

BARREN GINKGO TREES.—Professor G. G. Groff, Lewisburgh, Pa., says: "We have two large

Ginkgo trees in Lewisburgh, but they have not yet blossomed. I think they are about twenty years old, and say twenty-five feet high."

FRUITING OF THE GINKGO.—"R. W. D. A.," Farmdale, Ky., says: "You say a Ginkgo tree in Philadelphia has borne fruit this year, and that 'this is the first time the tree has been known to fruit in America.' We have here at the Kentucky Military Institute, Farmdale P. O., Ky., a Ginkgo tree which has borne fruit every season for four years, and plenty of it."

[We had overlooked the fact in making our note, that a lady had noted in the *Bulletin of the Torrey Club*, that a tree in the Central Park had borne fruit. This was probably two years before the Germantown tree. There seems to be quite a number fruiting—trees probably of about the same age—in various parts of the country.

The chief point of botanical interest, and which caused the original note, was the inquiry whether the plant has flowers of both sexes on the same tree? These solitary fruiting trees seem to indicate that it has; but botanical works make a strong point of the belief that it is a dioecious plant, that is one always having separate sexes on separate trees. Certainly the form always in cultivation heretofore has been of the male sex, and though the tree has been under culture for three-quarters of a century, no fruit has been known until these younger trees have furnished them.—Ed. G. M.]

A "COLLECTOR'S" LETTER.—The following letter was not intended for publication, but we cannot resist the temptation to allow our readers a share in a California collector's enthusiasm:

"I intend yet to give you one more trial about that nine-tenths of American plants, but to-night am too tired and sleepy; have been off all day collecting. Am pleased and mad; mad because we sent for carpet lining (for dryers) and got rosin paper. Why the mischief can't people send like the sample? I have got to scold some one, and you come first; first come, first served. Pleased because we have found some good things and in good order, and at least four new numbers for us on old ground; that pleases me, especially as some of them are inconspicuous. I hope for a new one. Blessed be n. sp.'s, for they comfort the heart of the collector and sell better than the old ones. I would not have tried to do anything to-night, but we start for the Mojave in three or four days, and have a week's work to do in them. I hope

to find everything on this trip; come home loaded with n. sp.'s and XX old ones. I think we have added *Cereus Fendleri* to the flora of California. We will be away for from two to three weeks, depending upon finds and feed (oh! that awful man, for not sending those dryers), and the amount of paper we have left. Even a buck-board, you know, has limits to its capacity. All our hay and grain has to be sent out ahead by freight team; we also take along some—all we can carry; that country affords none, after leaving the river. I am too stupid to write any more to-night. So adeos amigo!"

THE TALLOW TREE.—A California correspondent says: "I am shocked to find in your February number that what I wrote as a piece of pure fun, must have been mistaken for earnest, at least I judge that your remarks about growing toy colored candles on the *Stillingia sebifera* must have come circuitously from my foolish pen.

"I enclose a copy of my article, that I may be justified in thinking that no sane man would take it for earnest."

[After reading the jocular slip enclosed by our correspondent, it seems likely that the paragraph at p. 57 was in some roundabout way suggested by it. But there is nothing in that paragraph to be shocked about. The little toy candles used on our Christmas trees are made from wax obtained from *Myrica cerifera*, the wax-berry of the Atlantic seacoast. If any are imported from China, they are probably made from *Rhus succedanea*, one of the Sumachs. *Stillingia sebifera* produces wax equal to these, and one might in all seriousness inquire whether wax suited to toy candles could be profitably produced by the *Stillingia*.

The "light house" joke is equally reasonable. For a long time it was a question whether wax from the *Myrica* would not wholly supersede tallow on the score of cheapness; but tallow continued to keep the inside track in the race for low prices, and the *Myrica* had to give up. But there is now so much demand for lubricating oils, and so much improvement in the arts of preparing vegetable substances, that it did not at all strike us as incredible that the Chinese tree might perhaps be brought into successful competition with tallow; nor do we think it so yet.

Our correspondent's piece of fun we therefore take to illustrate the old law, that "There is many a true word spoken in jest."—Ed. G. M.]

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

COMMUNICATIONS.

JOHN MUIR, THE CALIFORNIA NATURALIST.

BY PROF. JOSEPH WILLCOX, OF PENNSYLVANIA GEOLOGICAL SURVEY.

In your paper of October 7th, you published some account of John Muir, the Naturalist. Although this very agreeable and instructive writer has contributed many articles, during the last ten years, to the *Overland Monthly* and to Harper's and Scribner's magazines, which have attracted much notice and favorable comment, I have never seen any published account of his history. I passed two or three days in his company in the Yosemite Valley, in the summer of 1875, and from him I learned the following facts regarding his history:

He formerly was the superintendent of a factory in Wisconsin. An accident to his eyes incapacitated him for a long time for the performance of his duties, and he finally abandoned his profession or trade. He was originally a millwright. Being an enthusiastic botanist, he started from his home to collect plants, and walked to Florida. When his stock of plants became burdensome, he sent them home by rail whenever an opportunity was afforded.

When crossing the mountains of Western North Carolina, he passed over some grounds familiar to me, and became acquainted with some of my friends there. While in Florida he suffered long and severely with fever. He finally "gravitated" to San Francisco by way of Cuba and Panama.

In California a new world of plants was revealed to him. Ascending to the top of the Sierras, he was so much fascinated by the flora of the mountains, that he determined to spend many years there, solitary and alone, to study the habits of the trees and plants and their distribution. He is a close observer of the distribution of trees and plants, regulated by their altitude and corresponding conditions of climate; his barometer being his constant and frequently

consulted companion. He told me that he had studied this subject so thoroughly, that, when travelling among the mountains, he could, even at night, tell approximately his altitude above the sea, by feeling the plants near him and ascertaining the prevailing species and genera. The geological structure of the mountains, and the sculpturing accomplished by the ancient glaciers, upon a scale so grand as almost to surpass comprehension, also excited his earnest attention, and inspired him to the conclusion to devote many years of his life to their study. He frequently returned to the Yosemite Valley from his long and weary travels, to recruit his strength, and to obtain stores for new expeditions. His stock consists only of dried beef, flour and tea, which he carries on his back, as he always travels on foot. He never carries fire-arms, either for protection or to kill game. It is a source of great delight to him to watch wild animals and observe their habits. He frequently passes many weeks without seeing a living person, not even a hunter or an Indian. He has discovered more than fifty living glaciers among the Sierras, small remnants only of the vast sheets of ice that formerly swept over the slopes of those granite mountains, cutting out deep gorges, in the case of the Yosemite nearly a mile deep. These glacial remnants are now confined to the shady recesses of the mountains, their lowest limit not being less than ten thousand feet high. He has driven stakes in these glaciers and recorded their position, and he makes occasional visits to them, to observe their progress. Their movements are usually very slow, in many cases not more than an inch per day, regulated in a great measure by the steepness of the channel in which they slide. He sometimes passes the winter in the Yosemite Valley, and even there he is practically imprisoned during several months, on account of snow, which accumulates to such a depth as to make travelling impossible. He invited me to make an excursion with him for a couple of weeks and visit some of his glaciers, but I was accompanying a large party, and was reluctant to leave

them. He appears to have little fear of wild animals, though he occasionally sees a grizzly bear.

[This extremely interesting sketch was originally written by the well-known Mineralogist, Mr. Willcox, for the Delaware Co. (Pa.) *Republican*, and will be new to most of our readers.—Ed. G. M.]

EDITORIAL NOTES.

WILDER'S SPEECH ON AGRICULTURAL EDUCATION.—Not long since we took occasion to note the wonderful amount of good Col. Wilder was doing, for one of his years, in the cause of horticulture and agriculture. He seems never to tire. Before us now is a Boston paper with a long account of a public meeting in behalf of the Mass. Agricultural College. The account says:—

"The announcement that an Agricultural Institute was to be held in the city of Boston, and that such speakers as President Chadbourn, of the Agricultural College, and the Hon. Marshall P. Wilder would address the meeting, struck a responsive chord everywhere among the promoters of 'Agricultural Education.' And notwithstanding the severe inclemency of the weather on the day appointed for the gathering, the hall of the New England Agricultural Society was well filled at an early hour with the most remarkable collection of representative men ever convened at an Agricultural Institute."

We need scarcely say that Col. Wilder's speech was full of his old-time enthusiasm, and his many friends can only wish that his emphatic "once more" may yet be oft repeated.

OLDMIXON.—The *Country Gentleman* correctly notes that the name of this peach is in one word and not in two, as in the incorrect Old Mixon. We are all of us liable to fall into bad habits for want of thought. For instance, most of us say "fungoid plants" and all sorts of things "fungoid," when we actually mean a fungus and not something like one. For this correction we are indebted to the kindness of Prof. C. V. Riley.

CHARLES DARWIN.—The whole world has summed up the life of Darwin. No man has departed more sincerely mourned,—no man's life has been more useful,—few men have left the world whom it will be as slow to forget. For many ages the name of Darwin will be honored as the one man above all others who taught us how to talk with Nature. If it should prove that he did not always interpret her language

correctly, it will not be the less to his credit. No one before him did what he has done. Others may learn more, but only by following in his footsteps.

INTRODUCTION OF THE CEDAR OF LEBANON.—In regard to the romancing narratives connected with the weeping willows, some correspondents wrote recently that it was a pity the editor of the *GARDENER'S MONTHLY* disturbed them, for they were "too pretty to destroy." There is no objection to pretty stories. We like them; and we doubt whether a mere story loses any of its interest by being given as a story, and not as the very truth. Dr. Asa Gray is also of this opinion, as we may judge from the following which has recently appeared in the *Gardener's Chronicle*:

"A paragraph in an article on the 'Travels of Plants' in the *Gardener's Chronicle* for March 25, just received here, calls up a reminiscence. Here is the paragraph: 'The introduction of the Cedar of Lebanon into France was an effort of most interesting devotion on the part of Bernard de Jussieu, who brought it from the Holy Land in 1737, and kept it alive on the voyage by sharing with it the very small quantity of water which he received during a prolonged voyage. In the absence of a flower-pot, Jussieu is said to have planted the cedar in his hat, and by giving it a moiety of his daily glass of water he succeeded in keeping it alive, and afterwards had the satisfaction of planting it in the Jardin des Plantes at Paris. In 1837, at the age of 100 years, it was cut down, having attained a height 80 feet.' I dimly remembered having read this narrative before in a fuller version. This is to be found in an article on coniferous trees in the *Edinburgh Review* for October, 1864. That account enters into details—that Bernard de Jussieu, when travelling in the Holy Land, brought away with him from among the Cedars of Mount Lebanon a little seedling, made a flower-pot of his hat, in which he planted it, got it safely on board a vessel bound for Marseilles; that tempestuous weather and contrary winds so prolonged the voyage that the passengers were restricted to half a glassful of water a day all through a lengthened voyage; that, sharing this with his little plant, he reached Marseilles at length with his own health seriously damaged, but that of his seedling uninjured; that, after all this privation successfully endured, he came near to losing the fruit of his devotion through the incredulity and suspicion

of the officers of the Customs, who, suspecting a scheme for smuggling jewels, wished to unearth this treasure from its singular receptacle; how, his eloquent appeals prevailing, he was allowed to carry it to the Jardin des Plantes, where it became a great and famous tree; and finally, how, "in its hundredth year (1837) it was cut down to make room for a railway, and now the hissing steam-engine passes over the place where it stood." I had supposed it was well known that Bernard Jessien never went to the Holy Land, and that most readers of the *Gardener's Chronicle* would know that no railway has as yet invaded the Jardin des Plantes, or that in such a case it would be likely to cross the steep knoll, upon which still stands (or last summer stood) the Cedar of Lebanon which, as a seedling, Jussieu is said to have brought over from England in the crown of his hat, said hat the while probably covering the honored head of the founder of the natural system. It is hardly worth while to enquire where the penny-a-liner of the *Edinburgh Review* obtained his materials, but the story of the voyage from the Levant to Marseilles seems to be an adaptation of one about three coffee plants which Antoine de Jussieu is said to have despatched from the Jardin des Plantes in 1720 to Martinique in a vessel commanded by Captain Decheux, one of which was kept alive by the devotion of the captain, under circumstances similar to those of that part of the preceding story."

PROFESSOR EDWARD MORREN, OF LEIGE.—Mr. Charles Joly, of Paris, gives in the *Journal de la Société Nationale d'Horticulture* for 1882, a charming account of a visit to the celebrated Director of the Botanic Garden at Leige. Professor Morren makes a rule to possess himself of every paper or tract on botanical topics that appears in Europe and America, and these are all classified in an admirable manner for scientific research. On his favorite topic *Bromeliaceae*, the Pine Apple family, besides published works, he has an enormous amount of manuscript. The Botanic Garden, founded in 1840, is sustained by the city government, and the citizens take great pride in supporting it. In the Aquarium the Victoria regia is a great success.

THE HALLIDAYS OF BALTIMORE.—The elder Halliday was, in the height of his strength, one of the foremost in giving Baltimore its great reputation as a centre of floriculture. It must

be a great pleasure in his old days to find his son working with such great energy in the path he himself so much loves. The business of young Mr. Halliday is growing to be something enormous, and his name in connection with flowers already taking a world-wide range.

JAMES VICK.—The portrait of this distinguished man has become very familiar of late, but the future will be glad to look upon the features of one to whom it will certainly feel indebted; for the work of the good man tells with more



JAMES VICK.

effect after he is gone than while living. As the *GARDENER'S MONTHLY* is almost always bound and preserved by subscribers, we are glad of the opportunity to place the portrait in the gallery of the future.

GEORGE A. STONE.—The severe loss Rochester, as the "Flower City," suffered by the death of James Vick, somewhat overshadowed the still great loss of George A. Stone, who died also of pneumonia a week before. Mr. Stone was comparatively young, but full of a business energy, which promised to equal that of others who have made Rochester so famous. He was a highly honorable man in all his dealings, and, though sometimes the term "tree agent" is received with obloquy, "agent for Mr. Stone" was seldom so regarded. So great was his business success that his sales last year exceeded \$400,000.

FLOWERS AND FERNS OF THE UNITED STATES.—As already noted, this work came to a standstill by the sudden death of its publisher last autumn.

The publisher's estate being found insolvent, the creditors could not agree on any method of carrying on the business, or on the disposal of the leading lines at private sale. The result was that the rights involved in "Flowers and Ferns" were put up at public sale on the 31st of May. The two leading bidders were Mr. Cassino, of the Naturalists' Agency, of Salem, Mass., and Messrs. Prang & Co., of Boston, the original projectors of the work. It was finally "knocked down" to Messrs. Prang & Co.

Precisely what steps will be taken for its re-issue and continuance, we do not know, but no doubt it will soon re-appear in some form.

ENTOMOLOGY; by Charles D. Zimmerman, Buffalo, New York.—Mr. Zimmerman, one of America's best entomologists, has reprinted a paper which appeared originally in the *Agricultural Review*, under the above title, and which is of an admirable practical character. We learn from it that the plan recently made known by Professor Burrill, that a weak solution of Paris Green sprinkled over an apple tree soon after blossoming, is a cheap and effectual means of protecting apples from injury from the codling moth. "Buhach" is made in California from *Pyræthrum cinerariæfolium*, and, like Persian insect powder is effectual in destroying insect life, and harmless to plants and animals. Oil is destructive to insect life. To cause oil to mix with water, first combine with milk and then dilute with water. When the GARDENER'S MONTHLY first introduced hot water as an insecticide it was careful to say dip for an instant in a temperature of 120° to 130°. Mr. Zimmerman says 150° to 210°. We have not tried at this temperature, indeed have found injury to tender leaves at 130°. What are the experiences of others? Mr. Z. says as a special point, that water at 210°, in the form of spray, will not injure a cabbage. This ought to be comfort to those who desire to go to war with the cabbage caterpillar.

We give these as a sample of the latest information profusely given in this valuable paper.

CORRESPONDENCE BOTANIQUE; by Edward Morren, Liege, Belgium.—This is a new edition of a work destined, the author tells us, to facilitate the relations between botanists all over the world. It gives the names and addresses of all the most active botanists in every part, so far as he knows them, giving besides their specialties, and the nature of the work on which each is engaged. It is interesting to note how very

large is the number of American botanists who have become known by their works in Europe.

AMERICAN JOURNAL OF FORESTRY.—A monthly magazine to appear the 1st of June, under the above name, has just been announced by the publishing firm of Robert Clarke & Co., Cincinnati. It is to be edited by Dr. Franklin B. Hough, well known in connection with forestry matters, and whose work "Elements of Forestry," by the same publisher, is to appear about the same time. We are certain the venture will be appreciated by all interested in forestry, and will, we are sure, receive a generous support.

SCRAPS AND QUERIES.

BEAUFIN, BIFFIN, OR BEEFIN APPLE.—A lady writes as follows: "In an article on Biffins in the May number of your magazine (culled from the *London Gardener's Magazine*), I was surprised to see the word Biffin spelled 'Beefing.' Surely this is an error. My recollections of Norfolk Biffins date from nearly sixty years ago, when a child in England. An old friend of my father's sent him yearly, as a Christmas offering from his home in Norwich (Norfolk), a box of Biffins, which box being opened with much ceremony (after the usual Christmas dinner), displayed layers of dark purplish cakes, about an inch and a half in thickness, and from eight to ten inches in diameter; every layer was separated by paper. The skin of these Biffins was glistening and moist, the inside resembling a rich, dark preserve. Chambers' Encyclopædia gives the word as Beaufin—or Biffin."

[When making an extract, it is of course necessary to give the orthography as used. As to the correct orthography, we have never been able to satisfy ourselves as to the origin and meaning or the proper way of spelling the name. The writer of this is familiar with it for forty years, and it was then in the list as "Beefing." "Beaufin" would indicate a French origin, but there is no such apple in any old French list. The description of an old French kind, "Cœur de bœuf," which we may translate as "ox-heart," is very much like that of the "Beefing," but the writer has never had the opportunity of examining this apple. If it were certainly a French apple, one might look for some such name as a Beef heart, or beef something or another, as a sort

of translation of the French name. As to "Beaufin," it is hardly likely Frenchmen would give it this name, as "beau" and "fin" have exactly the same meaning as we understand them. One old author writes the name "Norfolk Bœufin," as if he had the French for beef in mind. The earliest writer, we find, who refers to this apple, is Thomas Hitt, who wrote in the beginning of the last century. In the text he calls it the Baffin apple, but as the French apple—*Pomme-gris* is written in the same work *Pomme Gree*, we must not look on him as an authority in orthography.

Forsyth, in 1781, seems the first to use the word "Beaufin," and this is followed by Lindley in his "Guide to the Orchard," but without any other reason that we can see. One hundred years ago it was written by various persons Norfolk Beefing, Lincolnshire Beefing, Yorkshire Beefing, Catshead Beaufin, and Read's Baker—the numerous names at that time seeming to indicate that its history had even then been lost.

From all these considerations it seems very difficult to get at the correct term. Perhaps some of our European contemporaries, with a better command of reference books than we can have at this distance, may be able to settle the question.

Since the above was written, we have the following note from Mr. Downing:

"The name of this apple is sometimes written Beaufin, as if of French origin; but it is more correctly Beefing, from the similarity the dried fruit presents to beef."—(Hogg.)

"These Beefins, or Biffins, may do very well for Englishmen, but the Americans prefer canned or desiccated or evaporated fruits, and the Fall Pippin, for this purpose, is much superior to Norfolk Beaufin."—Ed. G. M.]

THE EUROPEAN AND AMERICAN CHESTNUT.—"F. L. S." asks whether the American and European chestnuts are varieties of the same thing, and in what part of Europe the chestnut is native? We give the answer under our literary column, because the question is rather one for history to solve. It is hard to say, in the ordinary sense of the word "native," whether the European chestnut is native there. It is wild there, and there seems to be evidence that it has been wild for at least 3,000 years. Some believe, however, that it was not known in Europe till brought from Thessaly, and the Latin name,

Castanea, is supposed to be derived from a Grecian town of that name, near which it is believed they once abounded.

The chestnut is found in Japan, as well as in the United States. As to whether the American, European and Japanese forms are varieties of one thing, or distinct species, it is hard to say. If we adopt Mr. Darwin's idea of natural selection, a species is nothing but a collection of individuals which have departed by variation from some central form, and in which the collecting links have been lost. It depends, on this view, how many links have been lost—that is to say, how far one form is removed from another form, whether it is to be considered a variety or species. The relationships of these chestnuts are so close that they must be regarded as on the border line, and possibly eminent botanists would hardly be unanimous in placing them as species.

The European chestnut is more nearly allied to the Japan form than to the American. It is probable that in the long, long ago, there was but one form—that the Japan and American colonies became isolated perhaps from the great ocean being formed between them, and by this very long time have assumed separate characteristics, just as a colony of isolated human beings do; that since—perhaps long since—this event the chestnut has gradually travelled from Asia to Europe, and that because this is more recent than the separation of the American colony, there has not been time for as great a departure as in the case of the American form. After all, the difference between native or indigenous, and introduced or wild, is merely one of time. All things in this world are on their travels, and it is quite likely every few thousand years the character of the vegetation in any one place becomes completely changed.

CRITICISMS ON OTHER MAGAZINES.—"S. F." sends an article controverting some statements made in another magazine. The paper is well written, and the criticisms are temperate and seem just, but as probably few of our readers have seen the paper criticised, and we have no room to reprint it in our own, the readers of the GARDENER'S MONTHLY will not be able to judge understandingly of the merits of the controversy. For this reason we have done as our correspondent requests, given "the reason, if declined." It is not, as he supposes, "fear of offending the other magazine."

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

PENNSYLVANIA HORTICULTURAL SOCIETY.

LADIES' RECEPTION.

BY S. T. N.

An interesting and beautiful feature of the operations of this time-honored institution, now advancing in the second half century of its useful career, is the annual reception given by its ladies' committee to the members and invited guests. The sixth recurrence of this festival took place on Tuesday evening, the 6th of June last, in the new horticultural hall, which, like the fabled phoenix of old, has arisen from its ashes with richer plumage and greater beauty of form and feature than it ever possessed before.

In the centre of the hall were spacious tables laden with floral offerings, from which the ladies of the committee, and their aids, dispensed refreshments and fragrant flowers to the assembled guests. From the stage, which was set with a parlor scene and decorated with foliage plants, a parlor orchestra discoursed soft music during the evening.

In the Foyer, or smaller saloon, fronting on Broad Street, there was an interesting display of tropical and other plants, sent by members of the society.

Among the contributions were plants in bloom from John Dick, Jr., decorative plants from H. A. Dreer, Robert Scott & Son, and John Nisbet, gardener to Mrs. David Jayne, and a collection of fifty varieties of rhododendrons in full bloom from Thomas Meehan. Floral designs, such as plateaux, baskets, pyramids, bouquets and boutonnières were also contributed by Pennock Brothers, W. P. Graff & Son, R. Scott & Son, C. Eisele, T. J. Maginley and J. M. Hudson.

About 1,800 guests participated in the pleasures of the evening, the hospitable character of which called to mind the motto that one often sees carved in the solid stone over the fire places of the olden time in the lands beyond the sea, "focus perennis esto." So may we hope and wish that "the fire of horticultural love may burn forever." Selah!

EDITORIAL NOTES.

PENNSYLVANIA HORTICULTURAL SOCIETY.—With the rebuilding of the Hall by the President, the Pennsylvania Horticultural Society is ready to resume its annual exhibitions, for which it has always been so famous. It has just issued its programme for the year. September 19th, 20th, 21st and 22nd is the time set apart for the annual exhibition. The premiums are very good, \$30 and \$25 for the best twenty-five ornamental plants and other flowers. Cut flowers, designs, fruits and vegetables receive due attention. A. W. Harrison, Recording Secretary, Philadelphia, will furnish programmes to all applicants.

MARYLAND HORTICULTURAL SOCIETY.—This body is exercising a highly beneficial influence on the community. The *American Farmer* says: "In another direction the Society has shown the ascendancy of correct ideas by moving for the abolition of the old iron railings, which so long disfigured the public squares in Baltimore, and by encouraging their adornment by the planting of shrubbery and the formation of beds of flowering and foliage plants in the stead of the former unbroken greensward and too thickly planted trees. Private taste has responded to the public examples thus offered, and on every side, specimens of good taste in planting may be seen. Window gardening yearly increases, and many greenhouses have been and are in course of erection, whose owners imbibed their love of plant forms by contemplating their beauties at the Society's shows."

PREMIUMS FOR SEEDLING FRUITS.—For varieties originating since 1860, well tried, and which prove in some particular superior to those now in existence, the Massachusetts Horticultural Society offers the following premiums:

For best Seedling Pear.....	\$60 00
" " Apple.....	60 00
" " Hardy Grape.....	60 00
" " Cherry.....	40 00
" " Strawberry.....	50 00
" " Raspberry.....	40 00
" other Seedling Fruits.....	40 00

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

AUGUST, 1882.

Number 284.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Editorial life is not favorable to looking much into detail in a large country like ours. It is not often that the editor's "easy chair" can be left long unoccupied. He may go out for a few days, but things will go wrong if he does not return soon. At least he thinks so. It is no use to tell him that things will prosper just as well when he is gone—that the sun will shine and the world go round long after his very name is sunk deep down in Lethé's stream; he will not believe it, and just there in that chair he feels he must be, if the plants are to grow, the flowers bloom, and the grain fields yield an abundant harvest. So he casts about in his mind whether, in the few days he calls his holiday, he shall go leisurely to one or two choice spots, note every thing in detail, and make a complete job as he goes along; or swoop forward as the swallow flies, and before he has scarcely left his chimney corner, get half way round the world and back again. If we follow our taste, we take the quiet, deliberate task, but in our readers' interest the rapid glance at our immense territory usually gains the day. So far this season we have had this rapid glance at Northern and North-eastern Pennsylvania,

Southern, Central and Western New York, and over a hundred miles into Southern Canada, and it has given great pleasure to note how gardening is prospering even in the remotest villages. The contrast between now and say a dozen years ago, is remarkable. Flowers are everywhere; choice fruits abound; the plots around the humblest houses show some desire for taste; choice trees and shrubs are not uncommon, but above all this there is an evident attempt at neatness and cleanliness everywhere. It interested the writer of this very much to know the views of leading horticulturists how all this has come about. One said it was through the introduction of lawn mowers; another, the influence of magazines like the GARDENER'S MONTHLY, and an enlightened and progressive agricultural press; another thought the Centennial Exhibition in Philadelphia deserved the credit; another praised the tree agent, who brought nice things to the most impossible places; still another thought of James Vick, Peter Henderson, and the scores of others whose names are heard even where "rolls the Oregon." The United States Government, with its liberal postage laws, had one man's vote, and one man gave his vote "to the ladies." This was while the writer was perched on the top of a stage, driving along Cedar Creek in North-eastern Pennsylvania.

The driver was a German. Passing a very pretty farmer's garden the casual observation was made that the garden was very pretty. "Dat ish zo," he replied; "dey haf vimins dere. Vere dey haf vimins, vlowers always ish." The editorial brain has not yet been able to decide whether the great increase of gardening taste has been due to the happy increase in the number of ladies, or whether any one of the other agencies should have the palm in this contest. Perhaps all, and more, may have had some share in the good result. At any rate, let each advocate and the friends of each view join in congratulations that our lovely art is being so generally appreciated.

COMMUNICATIONS.

THE ADORNMENT OF SMALL YARDS.

BY MISS A. G.

The limited dimensions of city and town yards frequently deter their owners from thinking them worthy of adornment; yet a judicious use of time, and a small amount of money, would soon make them "nooks of loveliness." Floriculture develops a taste for simple and enduring pleasures. The study of nature, and the appreciation of her beauty, give a life-long and ever-increasing investment in interests that widen and deepen as life goes on.

In laying out small yards, it is well to remember that simple plans are best for small spaces. Where graceful or peculiar outlines are desired, they are best shown by being set in grass, and should have space enough to make them quite distinct. I have seen large gardens entirely spoiled by a series of many-shaped beds and narrow paths. These give only a confusion of outline and mingling of plants that hide, instead of reveal, beauty. I have seen, on the contrary, a touch of grandeur given to a yard of good dimensions, by simply setting a large circle in the centre of a square plat of grass, the circle being filled and bordered with gay flowers. Another, seen in Nice, and fifty feet square, was made by peculiar but gracefully outlined beds to have the effect of much larger grounds, a place being given for shrubbery; a row of tall but slender-growing trees on each side; a bed of roses; other beds containing tall plants, with borders of flowers, and a hedge that made alcoves of each corner next to the street;

one contained seats and the other a child's swing; next to the house grew a beautiful screen of Heliotrope.

If the front yard is very small, it can be much improved by placing high-growing plants or vases filled with flowers, in each of the corners nearest the house. A straight path down the centre is best, with grass on either side reaching to the fence, or to a very narrow bed beside it. Set a circular bed on each side and at each end, with an oval bed between them. If there is a high wall on one side, it is best to let the grass come up close, leaving spaces for vines to run up the wall; any but a wide bed is out of proportion to a house or high wall.

In back yards, borders around the fence, with long beds on each side of a centre path economize space, and leave room between the beds for grass plots, which give a good background for the flowers, and also benefit them by the added moisture they give and retain. Do not put a path on each side of the bed, as it has a stiff appearance. I mention these only as suggestions of experience, but there are many plans to use with good effect, if space can be had.

Where the ground rises, or falls, terraces have a picturesque effect, especially if steps of stone are used, with vases at the head or foot, or both if a balustrade is added. I have seen half of a city side yard terraced to reach the back part; a grassy slope forming one side, which descended to a short avenue of pear trees running east and west. This changed the monotony of a flat space into a picture. The walls held a swaying mass of greenery, while the beds in front and on the terrace were almost dazzling with the splendor of flowers.

If the fences or walls are unsightly, they should be covered with carefully trained vines, as they are, aside from their beauty, the best relief for the gayety of flowers.

Where yards are divided by an open fence, light vines, not too closely planted, are very pretty and take away the formal appearance of a long straight line. Barclayana (white, rose and purple), Morning Glories, Cypress (scarlet and white), Sweet Peas (purple), and the single-flowered Clematis, Thunbergia (buff and white), the Allegheny vine, etc., are all suitable. To these for high fences can be added Bignonia grandiflora and B. capreolata, White Jessamine (south of Philadelphia), Akebia quinata (a Japanese vine bearing brown sweet-scented

flowers), Ipomea (tropical Morning Glories), Clematis flammula and roses, if the fence is an open one,—for they need circulation of air about them in order to thrive, and languish without it.

Any offensive object should be covered with lattice-work, or wire may be fastened to the upper part of a fence, to interpose as a shield for unsightly vistas. Wherever a rustic arch can be put, or a rough post for climbing plants, they will when covered with graceful, swaying vines, add much elegance to the grounds. In Nice I saw wire arches so arranged as to form frames to portions of the landscape. This could be done on a small scale among city vistas or village scenes. All blank spaces should be covered with vines, as they give life and elegance to an otherwise dreary sameness.

List of Coniferæ, Hardy in the Vicinity of Boston, Massachusetts.

BY PROF. C. S. SARGENT.

Thuja occidentalis	Pinus Jeffreyi
“ orientalis	“ pungens
“ gigantea (doubtfully)	“ pyrenaica
Thuyopsis dolabrata	“ ponderosa
Chamaecyparis sphaeroidea	“ parviflora
“ (Retinospora) pisifera and vars.	“ rigida
“ obtusa and vars.	“ resinosa
“ nutkaensis (doubtfully)	“ Strobus
Juniperus Chinensis	Picea alba
“ communis and vars.	“ Alcoquiana
“ Japonica	“ Ajanensis
“ Sabina	“ Engelmanni
“ Virginiana	“ excelsa
Taxodium distichum	“ nigra
“ (Glyptostrobus) Sinensis	“ obovata
Taxus baccata (doubtfully)	“ orientalis
“ var. Canadensis	“ polita
“ adpressis	“ pungens
Ginkgo biloba	“ Sitchensis
Sciadopitys verticillata	Tsuga Canadensis
Cephalotaxus drupacea	“ Mertensiana
Pinus Banksiana	“ Pattoniana (doubtfully)
“ Bungeana	“ Sieboldii
“ cembra	Pseudotsuga Douglasii
“ contorta var. Murrayana	Abies amabilis
“ densiflora	“ balsamea
“ edulis	“ concolor
“ excelsa	“ Cilicica
“ flexilis	“ Fraseri
“ Gerardiana	“ firma
“ inops	“ nobilis
“ Koriensis	“ Nordmaniana
“ Lambertiana (doubtfully)	“ pectinata
“ Laricio	“ Siberica
“ var. Austriaca (short-lived)	“ subalpina (doubtfully)
“ Mandshurica	“ Veitchii
“ montana	Pseudolarix Kämpferi
	Larix Americana
	“ Dahurica
	“ Europea
	“ leptolepis

I have drawn up the above list at the request of Sir Joseph Hooker. Following is a list of those hardy in the St. Petersburg Botanic Garden. A comparison of the two lists may interest some of your tree-cultivating readers.

Abies balsamea, Sibirica
 Juniperus communis, nana, Sabina, prostrata
 Larix Dahurica, Europea, Siberica,
 Picea alba, Engelmannii, Schrenkiana (nigra, rubra both dubious)
 Pinus Cembra, contorta, Montana,
 Pumilus Strobus, sylvestris
 Thuja Occidentalis
 Pseudotsuga Douglasii (doubtful)
 Retinospora obtusa, filifera, pisifera (doubtful)

PUBLIC PARKS OF ST. LOUIS.

BY CHARLES CRUCKNELL.

In the Southern part of the city is another of those medium-sized, breathing places which is a favorite resort for the people living in that section. So popular indeed is this park, that nine out of every ten persons one speaks to on the subject will tell you “Benton” is the prettiest park in the city, and naively ask: “Now, don’t you think so?” The grounds are kept in excellent order, and one is sure of finding a profusion of flowers in bloom all through the season.

Roses are extensively planted, chiefly Teas and Bourbons and free-blooming Remontants, like Madame Charles Wood and General Washington. It is no unusual sight to see thousands of flowers open at one time. Each color is planted by itself, and the beds cross and interlace each other in delightful confusion, the whole forming one continuous border on the edge of a large pond.

This flower garden has many little fancies which are full of interest. Thus, in one place a tiny thread of water trickles down a bank, forming a shallow pool at the bottom scarcely deep enough to cover some rocks which lie scattered around. A sensitive plant near by has thrown out a strong shoot which is creeping like a huge centipede over these rocks. The whole thing does not occupy more than six feet, yet what a world of attraction is centred in this spot.

In another place a tunnel has been built under the road-bed, and leads to a distant part of the park. The entrance to this is planted with tropical plants and looks like a bit of fairyland. Overhead a handsome vine—“Passiflora princeps”—makes a dense shade and is festooned with hundreds of flowers of a carmine red

color. In fact, this vine blooms all the time, for in winter this bit of scenery is covered with glass and remains intact.

On the north side of the park is a low range of glass where the bedding plants are raised through the winter. From thirty to forty thousand plants are used, roses in this respect being classed as bedding plants. Experience teaches that roses raised annually give more bloom and better satisfaction, with less attendant expense, than roses preserved from year to year. Remontants, as a class, are not grown at all. Six thousand roses are now being pushed vigorously forward for the coming season.

"Why do you plant so many flowers?" was a question put to the gardener in charge of the park. The answer was pregnant with meaning: "The people demand it," and the day will come when no park will be tolerated without its flower garden.

EDITORIAL NOTES.

CATS IN GARDENS.—A friend of mine once had his flower garden literally torn to pieces by cats. He got a piece of straight deal and cut it into thin strips. Into one end of each strip he inserted, with a pair of bell pliers, a common pin cut off slantingly close to the head, the cut end of the pin being the part inserted. He could make a quantity of these in a short time. He placed them among his flowers in a slanting direction, and he never had his flowers injured afterwards.—*L. C. K. in Gardening Illustrated.*

AN ARCH FROM A PINE TREE.—A correspondent of the *Garden* contributed a highly interesting article about gardening in Japan, and notes that the Pine tree is used to form arches over garden walks. Of course the plant is trained up to one stem, or rather the side branches are cut in and shoots are trimmed every year, while the main stem forms the arch.

JAPAN MAPLES.—A correspondent of the *Garden* says at Yokohama there were Maples in almost endless varieties, all in small unburnt pots. Large specimens of these had as many as sixteen varieties inarched on one thick stem of Polymorphum, and the beautiful combination of color and form of leaf had a pretty effect.

GOLDEN ARBOR VITÆ GRAFTED ON RETINOSFORA.—A correspondent of the *Garden* says at

Yokohama he saw large specimens of Thuja aurea, sugar-loaf shaped, as if made to order. A large tree of R. pisifera or obtusa is chosen, and in the spring thousands of small grafts are put on all over the branches quite thickly. The original tree is allowed to grow until the grafts have taken, and when the latter begin to grow the old branches are cut away, leaving nothing but the grafts; in two years a specimen is thus formed, some of them twenty feet high.

DECADENCE OF GARDENING IN JAPAN.—A correspondent of the *Garden* says: "The summer-houses, rustic bridges and gates were falling to pieces. As I sat waiting for Mr. Yatabi I thought what fine taste and pleasures these old daimios must have had in such quiet retreats as these away from the city. Scarcely one of these fine old gardens, however, now exists as of old, and it is seldom one meets with the beautiful gardens spoken of by Fortune. The present attempt of the poorer classes at gardening near Yeddo is not worth mention. Like many other old good things, gardening is fast dying out in Japan, and can only be spoken of as a thing of the past."

AN ENORMOUS VARIETY OF WISTARIA.—A correspondent of the *Garden*, writing of Japan, says:

"A fine Pinus koraiensis, trained into the shape of a Japanese junk in full sail, is at one end of the garden, and the priest who was in attendance told us that it had taken 500 years to train it. It was about 25 feet long and 10 feet wide, a perfect mass of foliage. I visited many other pagodas and temples, some with gardens celebrated for Pæonies, some Cherries, and some for the Wistaria. One variety I saw had racemes four feet long."

A raceme "four feet" long, and a Pine tree "five hundred years old," might lead one to inquire whether our figures have the same meaning in that singular land.

A NEW COLUMBINE.—If last autumn I sent to any of our correspondents in Europe a Columbine marked "Aquilegia sp., from Mexico (Dr. Palmer), flowers white and yellow," it is a new species, named by Sereno Watson, *A. longissima*. Dr. Palmer discovered it in 1880 on the mountains of Northern Mexico, and secured dried specimens for the herbarium and a few seeds for the garden. I raised a nice lot of plants from these seeds, and wintered them in a cold frame where they were bound in a cake of ice from last December till March 1st. Apparently they are as hardy as our other Columbines, and

hardier than *A. olympica* and *pyrenaica*. I expect them to blossom this year. Dr. Palmer tells me the flowers are white and yellow, tinged with pink, and the spurs from six to eight inches long and very narrow. Indeed, judging from the herbarium specimens, it will hold as striking a rank among Columbines as *Cypripedium caudatum* does among Lady's Slippers—*Fulconer in Garden*.

THE ENGLISH BIRD CHERRY AS A STREET TREE.—Among the interesting things noted at Allentown was the employment of the English Bird Cherry, *Cerasus padus*, as a street tree. People from the South often wish they could have the Carolina Cherry (*Cerasus Carolinianus*) as they see it South, but, except the Evergreen foliage, they have something quite as pretty in this. The trees were loaded with long racemes of white flowers, giving to the surrounding atmosphere a Hawthorn-like fragrance. It has an advantage in never getting too large, as so many street trees do.

FORKS AND SPADES.—There are innumerable cases in gardening where the spade must be used. It is perhaps the most essential of all garden implements. But there are also innumerable cases where the digging fork could be used to great advantage. It is remarkable, however, how difficult it is to get a laborer to use the digging fork in these cases. He sticks to the spade through thick and thin, though the "thin" can be done in double the time and with half the labor the spade implies. Even the contemned monkey will learn faster than some men.

GOLDEN EVERGREENS.—These do not differ very much from the normal green form in winter or early spring; it is in early summer that they show their grand character. Among Golden Evergreens few excel the George Peabody arbovitæ in striking beauty. In June and July it is the prince of golden evergreens.

PICEA ALCOQUIANA.—This promises to be very popular among the rarer evergreens. The new spring growth has a reddish tinge, which gives them the appearance of being large flowers. It is a very hardy kind.

OLD FASHIONED SHRUBS.—Germantown, settled even before Philadelphia was, though finally swallowed up by her younger sister, still retains in its old-fashioned gardens many grand specimens of old-fashioned flowers, which the old-

fashioned people from the land of the Rhine were so fond of planting. Some of these have been particularly fine this year. Let the folks in newer spots imagine Snowballs twenty feet high and as much broad, or Mock Oranges of the same size, with thousands of flowers, and they will have some idea of how June looks in old-fashioned Germantown.

A HONEYSUCKLE ORNAMENT.—One of the prettiest cheap garden ornaments we saw recently in a ride through Allentown. It was in a very poor person's garden, to judge by surroundings, but worthy of imitation in a place of more pretensions. A piece of old terra cotta pipe with a flange had been planted over a Honeysuckle and the plant drawn up through it; the next year another piece of pipe had been fastened into the flange, and the plant led up again. The Honeysuckle had for some years been growing in this way, drooping over some five feet of pipe. Possibly it would do as well trained up to a stake, but somehow we do not think it would look as well as this did. At any rate, this was a stake that would never rot away.

SINGLE DAHLIAS.—There are changes in the fashions of flowers as in the fashions of dress. But who would have thought that after the rage for Double Dahlias, and double all sorts of things, that improved Single Dahlias should be the proper thing just now? But there is a great deal of beauty in many single flowers, and we are glad that single Dahlias, like single Roses, should have attention. We should not be surprised if even "single-blessedness" came to be something more than a facetious expression.

EARLY RHODODENDRONS.—There is care required in selecting Rhododendrons as regards hardiness. The garden kinds are hybrids between *R. catawbiense*, *R. maximum* and *R. ponticum*. Those which retain much of the constitution of the last named usually get killed in American winters.

Another feature, not often noted, and attention to which would give more interest, is the selections of kinds as regards a succession of flowers. By due regard to this the Rhododendron season may be made to cover six weeks. Of well known hardy kinds one might take Chancellor for an early kind; Everestianum for a medium and Cyaneum for a late purple and Oculatum for a late white. Do our readers know of earlier or later ones than these?

NEW OR RARE PLANTS.

ELLWANGER'S NEW SEEDLING ROSES.—While at Rochester, recently, the editor was very much interested in Mr. H. B. Ellwanger's seedling roses. They were not then quite in bloom. The crosses are between such unlikely things as Teas and Hybrid Perpetuals, and similar distinct races; but the foliage and general characteristics of the seedlings showed that the experiments were complete successes, so far as uniting the races were concerned, and it is no wonder rose growers awaited with much interest the actual floricultural results. Since returning home we have a blossom of one he marks "No. 5," which is a remarkably large, sweet-scented flower, and of very beautiful form. The exact value will, of course, have to be tested by comparison of the plant with others already in existence, but so far as we can judge from a single flower, we feel safe in saying if there are many equal to this one the race of roses does not need much improving. Mr. E. deserves the thanks of all lovers of roses for the enthusiasm with which he pursues rose culture.

GYNURA AURANTIACA.—The Belgian papers are in raptures about this new bedding plant. It is said to be a Composite, with violet, velvet-looking foliage and orange flowers. "The aspect of the plant is really splendid," says N. E. Brown, an American Horticulturist settled in Belgium.

WIEGELA CANDIDA.—At Rochester during the nurserymen's meeting, Ellwanger & Barry exhibited cut specimens of this pretty white variety. There are a number of white varieties now under culture, but we regard this as one of the best. It has the habit of *W. rosea*.

A NEW UPRIGHT HONEYSUCKLE (*Lonicera Alberti*).—In the December number of Regel's "Gartenflora" just received is a colored figure and description of a new Honeysuckle, lately discovered by Dr. Regel's son, Albert Regel, in the alpine regions of Eastern Turkestan. It is a dwarf shrub, very diffusely branched, and furnished with small, narrow leaves, from the axils of which the blossoms are produced. These are in pairs, star-shaped, and of a pleasing, rosy, lilac color. This desirable shrub, which will probably turn out to be hardy, we hope may soon be seen in our gardens.—*Garden*.

SCRAPS AND QUERIES.

SOME ROSE QUESTIONS.—Miss Mattie W., Quaker Hill, New York, says: "I am a very interested reader of the GARDENER'S MONTHLY and enthusiastic cultivator of flowers and fruits on a small scale, but I often have sad failures with my pet plants, and seek information for their proper treatment from every reliable source. I will state my perplexities, and trust some kind readers of the GARDENER'S MONTHLY will favor me with their advice as they have in the past.

"I have some fifty roses, many of them the choicest varieties, mostly monthlies, and I would like to so manage them as not to lose one, which if I do, will be contrary to my past experience. They grow and bloom nicely during the summer, but I think there must be some fault in potting in the fall, as many die during the winter, and some after they are brought from the cellar in the spring. In taking them up is it better to try and take some earth with them? Often the roots go so deep that it seems impossible to do so. I would also like to ask, how to care for a *Jasminum d'Orleans*? It is said to bloom freely through the summer, but I cannot make mine grow. Where should it be wintered?"

THE HEMLOCK SPRUCE IN ENGLAND.—This is not often seen in English gardens, and the general impression from this is that it will not grow there. But a correspondent says:

"The hemlock does well in England, but is not so common as yew. There is a grand specimen at Dropmore, planted by Frost more than fifty years ago, but I forget the dimensions; it was a fine tree when I saw it nearly thirty years since."

From this it would seem that the only reason for the scarcity is the want of enterprise among English nurserymen in introducing it.

AILANTUS AND THE PUBLIC HEALTH.—"H. S. A.," Selins Grove, Pa., writes: "I am at present very much interested in getting the latest and best information about the qualities of the *Ailantus* tree. The Town Council of Selins Grove have just ordered the destruction of two fine *Ailantus* trees standing in front of our homestead, on the ground of unhealthiness. If they are right I would like to know it. In the *American Agriculturist*, April, 1878, is an item thus: 'Prof. Sargent, Director of the Arnold Arboretum, of Harvard, and also a member of the Mass. S. B. of Agriculture, has contributed

to the annual report of the Secretary of that Board some notes on tree planting. That portion of most interest to us relates to the *Ailantus*. It is true that the tree has one, easily avoided fault, which cannot, in the mind of any sensible person, offset its usefulness, &c.' I would like to get that report, and am ignorant of the name or address of any one from whom I might get them. If you could help me get that report and any other information on the subject you may know of, I should take it as a great favor."

[There are hundreds of *Ailantus* trees about Philadelphia, a number of them within twenty yards of the spot from this writing, and though some of these trees must have been where they are growing for twenty-five or fifty years, we never heard a hint that any one suspected them of being in any way injurious to health. We should not hesitate to say positively they are not. It would indeed be strange if, in the midst of the talent and fame connected with the medical colleges of Philadelphia, no one of the thousands of eminent men educated in them should have discovered the unhealthy character of this tree, some of which actually grow about the University. We should be inclined to carry it to the courts, if any Town Council ordered any of our *Ailantus* trees cut down for such reasons as these.—Ed. G. M.]

THE DOUBLE SLOE.—A correspondent says: "What is the meaning of the following from the catalogue of Ellwanger & Barry? '*Prunus spinosa*, var. *flore-pleno*,'—a beautiful small tree or large shrub from Japan, covered in spring with small, double, daisy-like, white flowers, succeeded by small, dark, purple fruit.' I had always understood *Prunus spinosa* to be the common sloe, of the English hedge rows, and not a Japanese plant; and that plants with double flowers never made fruit."

[The Sloe is a native of Japan, as well as of the North of Europe, and a double one may have been introduced as well from there as from Europe. There has been a double Sloe under culture for the past fifty years in European gardens, but we cannot say whether this from Japan is like unto it or not. There may be different kinds of double flowers, and it is just here the bother with Latin names for mere garden varieties comes in. A mere "*flore-pleno*" would not be new. As to double flowers producing fruit, our correspondent is right in the main, but sometimes all the stamens and pistils are not

changed to petals, and fruit may then follow. The double apple, double peach, double roses, double petunias and double carnations often produce seed.—Ed. G. M.]

RAPHIOLEPIS INDICA.—Mrs. S. E. B., Houston, Texas, writes: "Please be so kind as to give me the name of the shrub—spray enclosed. I wish to buy one and do not know the name to order. A friend has it here, and so far I have failed to grow cuttings from the young wood. The plant, four feet high and the same in diameter, is certainly a thing of beauty."

[Although this plant has the rather hard name we have given at the head of the paragraph, it would perhaps be called "Evergreen Juneberry" if it were grown in the North, where the *Amelanchier* or Indian cherry is so well known by this name. It is not far removed, botanically, from this plant, the very sweet, hawthorn-like flowers being in similar racemes with the addition of a tinge of rose at the base of each. In the South, however, it flowers as early as January or February, and is among the most prized of dwarf evergreens, wherever there is little frost. It is a native of China, and the temperate parts of the East Indies.—Ed. G. M.]

HEMLOCKS AND MAPLE TREES.—Dr. C. A. K., Chester, Pa., writes: "Will you have the kindness to inform us whether a hemlock hedge would thrive in rather close proximity to maple trees, say one foot from tree, and trees twenty feet apart. It is to be only a small hedge in front of residence, with every facility of watering twice a day, and keeping ground moist."

[We should under no circumstances recommend a hemlock hedge, or any kind of evergreen hedge where there are strong roots of trees, not even though water could be given to them occasionally in summer time. Deciduous hedges grow better. The roots of the trees will get the moisture the evergreen roots ought to have, and they die in the winter from the lack of moisture in the summer.—Ed. G. M.]

IMPROVEMENT OF SMALL GARDENS.—The remarks of Miss A. G. on the management of small gardens, must have a widespread interest. It is wonderful how much more may be done, than is, to increase pleasurable surroundings. Her remarks may be profitable for large as well as small places. It is amazing to note how bare of tasteful notions many places are. A few trees, a few flowers and bushes; and a nice lawn! But why should these be all?

GREENHOUSE AND HOUSE GARDENING.

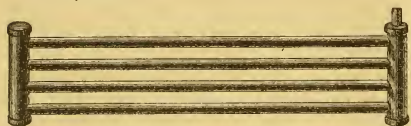
COMMUNICATIONS.

STEAM HEATING.

BY JOSEPH E. MACOMBER, PORTSMOUTH, R. I.

"Wm. H. B." asks some questions upon this subject in a recent MONTHLY. I have just built a greenhouse 108 x 26 feet and put in steam. My experience in the use of steam previously was that I had heated my house ten years without a cent of repairs on the boiler; sectional cast iron; perfect satisfaction. Previous to putting in steam in my greenhouse, I visited a number so heated and I think I have got the best plan I have seen. The essential difference is that the four pipes one above the other have a better chance to expand without injuring the one next or below.

Ordinarily the four pipes are put in 100 feet long and at each end of the house in a "header," thus:



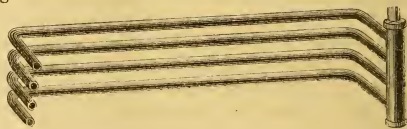
Now in practice, some of these pipes will be very hot and others cold, when no pressure is carried. The consequence is that some will scow out of the hooks, or gradually pull out of the "header."

In my house I do not put the header in the corner of the house but turn with an elbow and the header is six feet from the corner on the end. This gives each pipe an opportunity to expand independent of the other.

My house is so piped that I can heat half very warm and the other end little or none. "W. H. B." is under a mistake to think water must boil to make steam. I keep up a nice, gentle heat in cold weather, with no pressure, and water not boiling.

At night I so set my damper that no further attention is needed until morning. In relation to heating a dwelling house by the greenhouse fire, I would not do it. A dwelling house many

times wants heat when none is wanted in the greenhouse. A dismantled threshing machine boiler would not be as safe and would require great attention.



This cut shows a manner of turning the corners. I have seen no house piped like mine. In very cold weather I set the damper at night, so as to have a small pressure of steam all night, say five pounds, but seldom need any pressure.

DENDROBIUM BICIBBUM.

BY A. J. E.

This is one of the handsomest of all the Dendrobies and of easy culture. It does well potted in peat and sphagnum moss, with a liberal quantity of broken crocks and charcoal. It will do either in pot, basket or on a block of wood. It is very free to bloom and can be had in bloom by midwinter with ease and without much trouble or extra heat. It thrives well in an intermediate house, say from 50° to 60° Fahr. The flowers are rosy purple (sometimes tinged with lilac) and borne on long-stalked racemes, which make them more valuable for cutting. Orchids are getting in favor for loose flowers. This lasts for six or eight weeks in perfection. Native of North Australia on Mt. Adolphus.

MAKOYA BELLA.

BY ALEXANDER MESTON.

Having purchased a young plant of this last spring, I cut it down and after it started I shook it out and re-potted, giving a liberal shift, using a compost of rich, decomposed, turfy loam, leaf mould and a sprinkling of coarse sand. It started into vigorous growth, requiring a liberal supply of water at the roots. Towards October it showed signs of flowering. I then gradually

withheld water and removed the plant into a grapery at rest, giving it only sufficient water to keep the foliage from wilting; at the same time the flower spikes kept lengthening until the 1st of February, when fire-heat is applied to the grape vines; then it pushed along and is now in flower. The color of the flower is light lavender, beautifully veined and penciled with rich purple, and borne on racemes from the end of each shoot, the number of flowers being in accordance with the strength of the shoot. A large plant, well flowered, must be a beautiful object; it is very easily propagated; young wood roots freely in a gentle bottom heat. The flowers will be found very useful for florist's work, using the entire spike or singly.

STEAM HEATING.

BY A DANE.

Having in the last number of the *GARDENER'S MONTHLY* been reading about steam heating in greenhouses, I take the liberty to state the following: The last winter I was engaged in a nursery in Berlin, Germany, where all the houses, eight in all, were heated by steam, though in an entirely different way from that described in your magazine. I feel inclined to call it "steam and hot water apparatus," as it was the steam that warmed the water.

The steam boiler was lying in a little house built for it; from this a pipe, two inches in diameter, went through all the houses at one side, and back at the other. In each house there were below the shelves "reservoirs" or tanks made of thin iron plates, furnished with a lid and holding about twelve big cans of water. From the mentioned pipe went a small one (half an inch in diameter), provided with a tap at the base, down in each reservoir, some inches below the surface of the water.

When the steam was got up in the boiler the tap to the main pipe was opened, and directly after the taps on the small pipes, which operated so that the steam went down in the reservoirs, and in a short time made the water boiling; the steam was now turned off, and owing to the quantity of water, the reservoir kept itself warm for a long time. As a matter of course, it is not necessary to heat all the reservoirs, as it depends on the weather.

The house, which was 32 feet long, 16 feet broad and 13 feet high, was heated by ten reservoirs, and kept at 65° in winter, while a cold

house of the same size was heated by five reservoirs.

As I am told the temperature often goes down in Germany to 20° below zero, I suppose that nothing would interfere against the successful use of the same system of heating here. The nurseryman told me it was the most economical, convenient and practical way of heating he ever saw; it required but little attention, as the fire was only kept up one or three hours in the morning and night, according to the weather. In the propagating house was a long tank, made of bricks, covered with slates, and in this way formed the propagating bed. The steam was led down in this tank by three pipes, as it held a large quantity of water, which gave a splendid and steady bottom heat.

I hope you will understand the construction of this system; I am not able to explain myself more evident in the English language, as I am a native of Denmark.

SHY FLOWERING PLANTS.

BY D. F. W., NASHVILLE, TENN.

In the February number of the *GARDENER'S MONTHLY*, page 47, "B." asks, "How long does it take seedling Geraniums to flower?"

For several years I have grown them from seed thus: In the spring I group closely in a bed many of the best varieties in foliage, character, colors, double, semi-double and single of old plants. The seeds drop during the summer and fall, many taking root. These in October being from one to two inches high, showing two or three leaves, are taken up and potted in very small pots, using equal parts rich compost and sand. They are shaded for a few days, then placed close to the glass. In about six to eight weeks the pots are well filled with roots. The plants are re-potted in four inch crocks, using rich, coarse compost, with one fifth or sixth sand and plunged in a well-spent hot bed, not exceeding eight to ten inches below the glass; the tops are pinched back to make the plants symmetrical by May or June.

They being well grown and thoroughly "pot-bound," commence blooming, but not abundantly. As soon as they show the color and character of bloom, I take cuttings from choice plants and strike them. These make much finer blooms than the original plant. From this hybridization I get specimens of dwarf, medium and strong growing plants, foliage of various

colors, from the plain leaf to very deep and distinct zoned bi and tri-colored. Those flowers that prove true to original plants, in many instances are larger and brighter, whilst in others they are smaller.

Have raised many plants with markings and inflorescence entirely distinct from any of the plants originally set out. One of last year's plants, a seedling of 1880, gives a large fine single bloom with pure white throat, centre of the petals dark rose, margined pure white. I have others of very interesting and distinct characteristics.

These experiments were made solely for pleasure and not for pecuniary profit. I have no plants to sell.

ON THE CULTURE OF THE CLOXINIAS.

BY JOHN WOODING, PENCODY, PA.

To begin with propagation, select strong healthy leaves, cut the strong ribs in several places, lay the leaves flat in a convenient sized pot or seed pan and cover the several cut parts with a little white silver sand, using a compost of sand and peat mould.

When struck and swelled to the size of a pea, pot off in two inch pots, using a compost of dead leaf mould, light loam and sand in equal parts; grow them on through the season and most of them will flower the first year.

To commence the second season's growth; in potting Gloxineas the principal part of the old soil should be removed carefully with the hand, retaining all the fibrous roots as far as they are alive, put into as small pots as possible, setting them in a dry part of the stove. Attend to watering, but this element must be supplied cautiously at first, taking care not to water over the crown of the plant, but around the edge of the pot. As the plant advances in growth it may occasionally be syringed with tepid water. When the pot becomes filled with roots, shift the plants, using the same soil as before. As the spring advances the plant must be started into active growth by being placed in the warmest part of the stove; but it will be necessary that they should have air at all favorable times. Particularly attend to watering at this time, as they are very impatient of drought at this stage of their growth. When the plants have filled the pots with roots they may receive their last shift. The size of pots may be regulated by the size of the plants, allowing plenty of room for the plants to

develop; otherwise a profusion of bloom and large flowers cannot be expected. Manure water may be used to great advantage at this season. I should have mentioned that it is particularly necessary to drain the pots well with broken crocks and rubble with a covering of rough soil, as nothing is more injurious than stagnant water at the roots.

When the flowering season begins and the flowers expand, remove the plants to the greenhouse, taking care to shade them from the sun. When the flowering season is over reduce watering by degrees until the roots are in a state of rest for three or four months at least. Be careful not to over-dry them, as by such practice, I have often found they do not break the next season.

BIGNONIA VENUSTA.

BY MR. CHAS. E. PARNELL.

The lovely trumpet-flower, *Bignonia venusta*, is a gorgeous, ornamental, climbing plant belonging to the natural order, Bignoniaceæ. It is a native of South America, from whence it was introduced in 1816. It is a deciduous greenhouse climber, attaining a length of over fifty feet, producing its bright orange-colored flowers in large terminal clusters from February to April. In order to flower this *Bignonia* to perfection it is absolutely necessary to plant it in a well prepared border of rich, loamy soil, and where its roots can obtain some warmth from the heating apparatus. It also must have an abundance of room for its roots, and likewise for its branches; for if these essential requisites are not given it, it must not be expected to flower well. It also requires to be properly pruned; young plants three or four years old will flower nicely if they are properly pruned. In pruning, use a little judgment; cut back all weak and unripened wood to one eye, retaining as much of the strong and well-ripened wood as possible. All branches that are retained should be neatly tied up, spreading them out as much as possible, and as they increase in growth they should be kept tied. Do not pinch back the young shoots on any account, but, if possible, allow them to ramble at will.

During its season of growth water should be freely given, and the plant frequently syringed, and when in full growth liquid manure water should be given once a week if possible. During the summer season, or when the plant is at rest,

give only water enough to prevent the plant from becoming absolutely dry. Pruning is best done just before the plant starts into growth. It is altogether useless to try to flower this *Bignonia* as a pot plant,—for if either the roots or branches be limited as to room, the result will be very discouraging to the person attempting its cultivation.

COOL ORCHIDS—LÆLIAS.

BY W.

Before taking up the very numerous family of *Oncidiums* I would like to speak briefly in hearty commendation of this beautiful genus, remarkable both for the loveliness of its flowers, and for the ease with which they may be successfully produced.

As far as I am aware, there has not been discovered a single variety unworthy of cultivation, and it was fitting that the founders of this queenly genus should have connected its lovely qualities with those of that charming Roman maiden, distinguished alike for the purity with which she spoke her native tongue, and the sincerity and earnestness of her conversation.

The number of species comprising this genus is not large, about thirty only being enumerated by the several authors, and a few of these are, without doubt, varieties only, or natural hybrids, not to mention several that have been obtained by cross-fertilization with the neighboring genus, *Cattleya*, with which they are very nearly allied, the only botanical difference being the presence of eight pollen masses instead of four. Some of the species even are indiscriminately known as *Cattleyas* or *Lælias*. The difference that presents itself at once to the amateur is in the style of inflorescence. The flower scape of the *Lælias*, with rare exceptions (as for instance in the lovely *L. Jongheana*), develops directly from the summit of the pseudo-bulb in the axil of the leaf, and in many varieties is long and slender, not displaying its flower buds until well advanced, reaching the length, in the case of *L. anceps*, of three and four feet. The inflorescence of the genus *Cattleya*, though starting from the same point, makes itself seen through a sheath two or three inches in length, and when the short scapes appear the buds are already developed and increase in size very rapidly, expanding in a few weeks, the stem rarely, if ever, exceeding one foot in height. In size of flower, and breadth of sepals and petals, the latter generally surpass the *Lælias*, though

by no means in the beauty and richness of their coloring or in the substance of the flowers, which embrace all the shades of purple, crimson, rose and lilac, and also in rare instances anethyst, red, orange, scarlet and yellow.

Lælias are exclusively American, and are found in Mexico, Guatemala, and various parts of South America; many from different portions of Brazil. They were first introduced into England in 1830 to 1835, *L. anceps* having been first flowered there in 1834; other species followed at intervals until 1840. The only varieties of recent date are *Daycana* and *harpophylla*, respectively purple, lilac and white and orange-scarlet, both from Brazil, which appear in the "addenda" to "Williams' Manual," 1877, fifth edition.

The Mexican varieties are all best grown on blocks,—directions say, *with* a little sphagnum moss; practical experience, as stated very generally by a contributor to the *London Garden* (page 562 of 1881), which is borne out by the observations of others, says *without* any moss, the roots clinging firmly to the blocks and fastening the plants there, and when too long hanging for two feet or more in mid-air. The same writer very truthfully remarks: "One thing in orchid growing seems now fairly settled, and that is heat, air and moisture being duly proportioned, it matters but little in what compost the plants are anchored," and in this article he alludes to such orchids as *Trichopillias*, *Cattleyas*, *Lælias*, *Mormodes*, *Cateseturus*, *Brassavolas*, and others from Mexico. Many amateurs are fast becoming convinced of this fact. In the houses to which I have access equally good plants of *Lælias* are seen grown with or without sphagnum. With proper attention to their wants in these respects an ordinary greenhouse is the best in which to grow them, and the increased size of pseudo-bulb spikes and flowers, from year to year, attest its success. The care of a few plants will soon afford to an observing person an insight into their requirements. It is no secret, for even when neglected they will bear more abuse than any plants, possibly *Cacti* excepted.

This article, already too long, should not be brought to a close without enumerating a few of the best species for the amateur.

First and easiest of culture are the lovely Mexican specimens, *Albida* and *Anceps*. The former with waxy blossoms in clusters of three to six, often nearly white, and as often tinged

and tipped both in lip and petals with pale pink or light rose; occasionally individual flowers are three inches across. They will last in the drawing-room four weeks or more, and as cut flowers will remain fresh a very long time. The latter, with clusters of from two to five, rosy or pale lilac flowers, with deep purple or crimson lip, individual flowers three to four inches across, lasting three to five weeks in beauty. There are several rare and costly varieties of this species among them that are nearly white, called *Dawsonii*, the value of which collectors write "every Indian in the country knows, and they bleach out the flowers of the ordinary variety with sulphur in order to deceive in disposing of them." Block culture suits them best, as it does the three following.

Next in value comes *L. autumnalis*, with its beautiful purple and white flowers, often six on a scape. One variety, very dark, has been called *Atrorubens*. None of the wretched wood-cuts I have seen give any idea of the exquisite beauty of these flowers. These three varieties bloom in December and January, occasionally in November, and no collection of orchids is complete without them. *Lælia peduncularis* (very similar to *L. acuminata*, white, called by the Guatemalense, on account of its beauty, the "*Flor de Jesu*") is a dwarf, and very lovely free-flowering species, but does not expand its delicately tinted and shaded rose petals as fully after the morning sunlight has past as the preceding, but, notwithstanding, is none the less beautiful, with a rich deep purple blotch in the centre of the lip.

The fifth species, called by the Mexican Spaniards "*Flor de Majo*," or May-flower, from its season of flowering, is *Lælia Majalis*. This was figured by Hernandez as *Flos pulcherrimus*, a rude wood-cut merely in 1615, and he gives its native name as "*Chichilitic Tepetlavhxoचितल*!" It was introduced from Mexico in 1838. It is a very beautiful species, the prevailing color soft rose or silvery lilac, with white, lilac and purple lip. Its scape bears but a solitary flower. Though easy to grow it is rather difficult to flower well, probably owing to an error amateurs make in keeping in too much heat during winter. Coming from the highest orchid limit in Mexico, where collectors tell us snow and ice are often found upon its leaves, it is too much to expect it to thrive in the roasting heat of 80° during the winter season. The foolish blundering that has subjected these plants to such extremes seems now to be receiving its merited

condemnation at the hands of the advanced ideas of modern gardeners and amateurs.

There are other species that might be named, but these will suffice, only mentioning a few from Brazil, the largest of which do best in pot-culture. *Lælia perspurata*, and its varieties, with large, pure white and purple flowers; *L. elegans*, from white to crimson and carmine; *L. Cinabarina*, reddish orange; *L. Perrini*, purple and crimson, and many others, besides the two alluded to at the beginning of this article. All will do well in pot-culture, but from my experience do not grow as freely as the Mexican varieties under greenhouse treatment. They bloom at different times of the year, and all are very beautiful. Is it any wonder that with such a list as this the lover of orchids includes the *Lælias* among his richest treasures?

EDITORIAL NOTES.

IMPROVEMENTS IN FLORAL DESIGNS.—The improvement referred to recently by a Boston correspondent seems to be this—that florists can buy letters in immortelles or other small designs, already made for working in with larger work, without having to make these letters and designs every time. The ornaments and letters are made of purple immortelles, which are woven with fine wire, each ornament and letter in one piece, which can be placed on the design by stemming to a toothpick. The ornaments and letters are mounted on cardboard.

SOLOMON'S SEAL FOR DECORATING.—We were shown recently "something new" among decorative plants, nothing but a "racemed Lily of the Valley." The novelty was in the name, for the plant was the well known "*Solomon's Seal*," or *Polygonatum*. But it is new to find it used by florists for decorative purposes, and we commend the good taste which first thought to make use of it.

RICHARDIA ÆTHIOPICA.—This, the common "*Calla Lily*," we have a flower of from C. & B., Erie, Pa., with no letter to explain why it was sent.

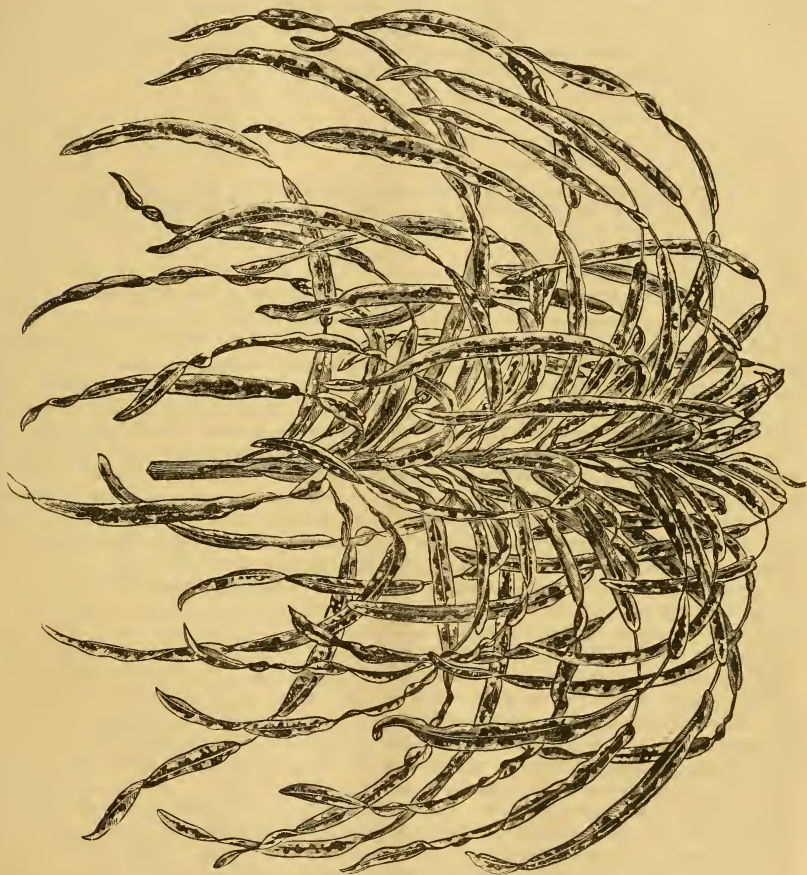
MOSS CULTURE.—The use of moss impregnated with bone dust, or other fertilizing material, for plant growing, which was introduced to our readers a couple of years ago by Mr. Peter Henderson, has proved a great success. Efforts are being made in some quarters to turn the idea

into a sort of patent nostrum affair, and "fertilizing moss" is being sold in Europe as something very wonderful. Not only are the "bulls" at work in its interest, but a "bear" movement against plants in rooms, grown in earth, also in the interest of "fertilizing moss" is also apparent. We may actually catch malarial fever

NEW OR RARE PLANTS.

CROTON SINITZIANUS.—The great merits of the Australian crotons as plants adapted to American summer gardening, leads us to welcome every new addition to the list. Our flower gardens are now rich with *Coleus*, *Geraniums* and

CROTON SINITZIANUS.



from sleeping in a room with a flower pot full of earth in which a plant is growing. And, wonderful to think of, all this terrible suffering can be avoided if you will only buy, for a few dollars, a few cents' worth of "fertilizing moss!" How natural it all sounds to the regular reader of "medical" advertisements.

so forth, borrowed chiefly from the gardens of Europe. We might just as well have a distinctively American style, made up of plants which will look just as well as those used in Europe, but which will much better stand our summer suns. Of such plants these various crotons are excellent representatives.

This species was introduced to cultivation by the well known firm of Veitch & Sons, of Chelsea, London, who give us the following account of it: "An elegant variety kindly sent to us by Sir William Macarthur, of Camden Park, near Sydney, New South Wales. The plant is of very light and pleasing aspect. The leaves are narrowly lanceolate, gracefully arching and variable, some with interruptions, others with the blade spirally twisted two or three times round the midrib at the middle, others again

crisped and undulated. In color they are deep olive green, variegated with straw yellow, which is constant. It is one of the best of crotons for table decoration. We have much pleasure in dedicating this elegant plant to Monsieur Peter Sinitzin, an accomplished Russian amateur."

PRESIDENT GARFIELD BOUVARDIA.—This is the name of the double pink Bouvardia noticed in our magazine last year as having been raised in Kentucky.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Talk as we like about the proper culture of fruit trees, much more of success depends on geographical location than it usually gets credit for. The Apple will grow almost anywhere, but there are places where, for some inscrutable reason, it will do better than anywhere else. S. D. Willard has recently claimed for Western New York the distinguishing title of the "apple orchard of the world," and we believe he can justly claim it, unless some portion of Canada rises to demand a share in the distinction.

According to the recent observations of the writer, there is a belt of about fifty miles around the western end of Lake Ontario that is fully the equal of Western New York in ability to bring the apple tree to perfection. Still the apple orchards of Western New York are a sight to see, and those who have never seen them have missed one of the greatest sights in the United States. There is, however, one matter which will not fail to attract the observer's attention. Many of the leading agricultural papers of New York State insist strongly on the necessity to success in orchard culture that the apple orchard should be devoted solely to apple trees. If paradise be an orchard of apple trees, crops of grain, grass or vegetables constitute the great serpent which is to creep within the gates, and upset all the good calculations of the good settler-out of the orchard trees. Strange to say the "cleanly cultivated surface" is a rare sight in a New York orchard. It would be no exaggera-

tion to say that in some ten days of travel the editorial eye rested on hundreds of apple orchards, and but two were noted which had nothing but apple trees, and these were large trees, growing so closely together that nothing else had more than the shadow of a chance, under the umbrageous foliage. Wheat, rye, barley, corn, grass and potatoes in the apple orchards are all but universal. There is no doubt but that, theoretically, an apple orchard ought to do better when it has all the food it requires alone to itself. If it has to share with other crops, what it ought alone to have, it should surely suffer. But it may be that sometimes there is food for it, and to spare. And again, there are often theoretical advantages, but practical gains in violating them. There is an old adage that people can "gain an inch but lose an ell," or, in more modern phrase, "save at the spigot and lose at the bung," and this may be the case in some of our orchard speculations. The orchardist of Western New York may get a few more apples, or somewhat larger trees by giving up the ground wholly to the fruits, but it is evident he thinks the heavy crops of other things he gets is more than a match for the loss. And moreover, the remarkably healthy trees did not seem to object seriously to their more agricultural neighbors' company. Cherries do well usually in most districts, but these seem the most at home in the higher lands of Pennsylvania. At elevations of 1,000 or 2,000 feet they are beautiful pictures, both in the health of the trees, and the wonderful abundance of luscious looking fruit. The Peach

does not seem to be planted to any great extent in what might be termed the best apple districts, but in the belt before referred to, on the western side of Lake Ontario, very large orchards were frequently seen. The whole region, however, seemed afflicted by the curl. Indeed it was prevalent to an extent never before met with in the writer's experience. The diseased leaves had here a brownish cast, which led at first to the impression that some new form of the curl fungus had been operating so destructively, but it was probably only the extent of the injury which gave more color to the results. If we were not mistaken the disease was almost wholly confined to trees which had borne at least one crop. Young trees seemed free from it.

These suggestions from recent experiences are thrown out as reasonable hints to those about planting orchards. There is no doubt much in the proper selection of varieties; much in selecting healthy trees; much in all that the term good culture implies. But with all this there is something in geographical location, and this something cannot be taught by any theoretical reasoning. It is a matter wholly to learn from experience. He, therefore, who would plant wisely should first find out what has already been done in his vicinity, and what the result has been. He will then have a better foundation for all success, than anything books can teach.

COMMUNICATIONS.

STRAWBERRIES.

BY H. M. ENGLE, MARIETTA, PA.

The Strawberry being such a desirable fruit, that not only the eating thereof stimulates to good nature, but it will also bear much good natured talk and correspondence without tiring, in consideration of which I hereby add my mite; hoping it will not prove superfluous or out of place.

What is the best variety and what the best method of cultivation is, however, an unsettled question, and perhaps will be so long as we mortals grow and eat them; for, so long as soils, and habits of growth, and even tastes, differ, no one variety can receive universal approbation, and it is perhaps better that it is so, or we would all cease to aim higher and consequently settle down to indolence in this as also in general pomological progress. Having grown Strawberries the

last twenty years for market, and without stint for our own table, of many varieties, also having at one time over 3,000 seedlings, designedly cross fertilized by myself, I claim, therefore, not to be altogether a novice in the business. I also claim that I can sympathize with many who in raising a few new seedlings, imagine they have acquired a bonanza, and consequently send out the new comer for public honors with great flourish of trumpets (on paper), to the sad disappointment of many. My lesson in raising new seedlings has taught me, as it will teach others who are over-confident in similar enterprises, that the chances are few and far between, to originate something superior in every respect to what we already have, and planters generally are getting to be more cautious in receiving novelties without being generally approved. I would not for a moment discourage the raising of new seedlings, but rather strongly encourage it, and also advise to make haste slowly in their dissemination. I have, however, sometimes censured myself for having been too slow; that instead of keeping so many to test, I should have selected some of the best and destroyed all the rest, as there were some among them much superior to dozens for which we have paid big prices; but holding on to so many without proper attention, they overran each other and were plowed down. This season I have raised a few thousand quarts of the finest berries I ever saw, and the same expression was made by competent judges; the bulk of which were Sharpless, and of about thirty varieties, which I fruited for several years, some already discarded. Without hesitation, I place Sharpless at the head of the list as possessing more desirable qualities than I have yet found in any other variety.

1st. It is the strongest grower that I have yet seen. 2nd. Resists heat and frost well. 3rd. Largest berry. 4th. Can be eaten before fully ripe, and yet can be left on the stalk longer than most varieties without seeming overripe. 5th. Color, all that could be desired. 6th. Better without sugar than some kinds with it. 7th. Continues to be profitable in the same bed for at least three years.

Crescent stands next in my estimation; and these two varieties shall be the bulk of my plantings, unless I find their superiors. The merits of the latter are: 1st. Earliness. 2nd. Productiveness. 3rd. Color, for which it has no superior. 4th. Hardiness. 5th. Carries well, and when properly grown will sell with most other

berries. I question whether the Crescent gets a fair chance with many growers, having at first been sent out as weed-proof, which it is to a great extent, but which, in my opinion, has operated very much against its real value, as there are so many careless cultivators to which the Crescent seemed to be a "windfall," expecting to get enormous crops with little or no attention except planting. In all my experience I found none that responds more bountifully to proper care than this. It is almost purely pistillate and should be planted adjacent to varieties which are strongly staminate, although in some seasons or in certain favorable conditions, it produces fine crops without such aid.

With regard to the productiveness of Sharpless I should have said that it is scarcely second to any that I have yet grown, and in addition produces a larger proportion of large berries than any other variety that I have yet tested. Next to the above I value Charles Downing and Cumberland, and shall not yet discard them as they have given paying crops. Boyden's No. 30, and Monarch of the West, produce fair crops of large berries, but are objectionable on account of green tips when the bulk of the berry is ripe; besides they are only of second quality. Great Prolific is too dark and soft for a market berry, and lacks that great productiveness which was claimed for it. President Lincoln promised well at first, and much as I would like to honor it on account of its name, shall discard it; it makes a few large berries of first quality, but not much more can be claimed for it.

Kentucky will be retained on account of its lateness and fine quality, although rather soft for shipping. It will also bear careless culture better than most other kinds. De Gand has size, quality and firmness, but lacks productiveness, and makes too many imperfect berries. Huddlesen is a fine large berry, very much like Cumberland, but more acid, and foliage suffers more from hot sun. Windsor Chief, moderately productive, rather acid. Glendale, one of the most worthless I have yet tested. Garden, excellent but not sufficiently productive. Duchess, in size and productiveness may be considered a strong rival to Crescent, but I prefer the latter. Mount Vernon promises well, and may take high rank as a late berry, of large size, firm and productive, one of the strongest growers. Longfellow, Warren and Minnesota on trial and promise fair, all

berries of large size and good quality. Among those not fully tested, are Primo, Manchester, Crystal City, Finch's Prolific, Jersey Queen and Big Bob. From my judgment of the latter, it will not beat everything as claimed by A. P., but Jersey Queen may become a rival to Sharpless, except in firmness, which is an important matter for shipping. Bidwell came with such strong claims from up the Hudson that I confidently expected it would set Sharpless, as well as all others, in the shade, but thus far it does not sustain the same reputation on the Susquehanna by a long ways, and I suspect it has been overrated. Side by side with Sharpless, when in bloom I concluded the latter might get a set-back, but in fruiting it was fifty per cent. below Sharpless in size and quantity, besides not equal in quality and firmness. I shall not extend its planting unless it behaves much better than it did this season, except to raise plants for such as wish to test it.

Our soil is loam, from sandy to clay, with a porous sub-soil.

DISEASE ON PEAR LIMBS.

BY ISAAC C. MARTINDALE.

Some time since I received from Frank Erbland Waldo, Florida, a piece of a branch of Le Conte Pear tree, which had been attacked by fungus. As this variety of pear has been supposed to be entirely healthy, and proof against disease, the matter is of more than ordinary interest to pear culturists. I submitted the specimen to J. B. Ellis, Newfield, N. J., one of our best authorities on fungus growths. His reply is so interesting that I have thought it proper to have it published in the MONTHLY. He says:

"I have just examined the piece of limb of Le Conte pear affected in a peculiar manner by a fungus growth which appears to be quite injurious. The first appearance is of little reddish brown circular disks, about one millimetre in diameter at first, and slightly elevated above the surface of the surrounding bark. The little disks continuing to increase, become concentrically cracked and enlarged to $\frac{1}{4}$ or $\frac{1}{2}$ an inch in diameter, or by confluence spreading along the surface of the limb for one or more inches, and nearly surrounding it. This diseased growth bears some resemblance to the diseased blotches on black raspberry canes sent me last season by Mr. Williams, of Montclair, New Jersey, but differs in the blotches being of a darker color

and concentrically cracked and having a distinct raised border. On this diseased growth are two distinct species of Sphæriaceous fungi, belonging to the genus *Sphærella*. The species of this genus are found mostly on fallen leaves and dead vegetable stems. A few, however, attack living plants; although not known to be specially hurtful, must of course cause more or less injury to the living organism. It may be that this diseased growth on the pear limbs is caused by the mycelium of the fungus which has somehow found a lodgment on or in the living branch, and by its growth and development caused the abnormal scab-like excrescences which may be necessary to the production of the perfect ascigerous fungus. In favor of this view the analogous case of the fungus causing the Black Knot on plum and cherry trees may be cited. The only known remedy for Black Knot is to cut off and burn the affected parts, and that would certainly be a safe method with the diseased pear limbs, for it is not likely that the affected limbs where the natural bark has been in great part broken up and destroyed by this excretory growth will ever recover even if left on the tree."

PEACH FLOWERS.

BY T. V. MUNSON, DENISON, TEXAS.

In GARDENER'S MONTHLY for June, speaking of the greater hardness of the large flowered peaches, Friend Sherfy is on the right track. Let us have a complete succession of large flowered kinds, and then we can have a crop of fruit through the entire orchard every season that fruit hits at all, instead of a few kinds full and the balance with few or none. The Crawfords are fast losing ground here on account of shy fruitage. They make no money in comparison with large flowered varieties. Mr. Satterthwaite is slightly "off" when he says "all the good peaches are among the small flowers." Is not Early Rivers the best peach of the season? Are not Alexandra (not Alexander), Grosse Mignonne, Belle Bausse, Chinese Clings, Noblesse, Early York, Lord Palmerston, Princess of Wales, Old Newington, Osceola, Pavie de Pomponne, Picquet's Late (unsurpassable in every respect; beats the Crawfords), good peaches? Though I would not recommend all of them, they indicate what may be accomplished. There is yet work for the originator. But there are some notable exceptions to the rule. There are no surer or better bearers than

Early Louise, Troth's Early, Thurber's Family Favorite, Salway, Lady Parham, Levy (Henrietta), all of which have small flowers. We must be carefully discriminating, not following too much after general rules.

EDITORIAL NOTES.

HISTORY OF A FIVE CENT PAPER OF SEED.—Did any one ever stop to consider how much a five or ten cent package of seed went through before the purchaser finally committed the contents of the said package to the ground? Perhaps the writer may have thought of it. Editors have to consider everything. Still, we have to confess to a wonderful amount of ignorance until a few hours spent recently at the celebrated Bloomsdale seed farm gave us some more light on the subject than we had enjoyed before. The present owners, Leo, Oliver and Burnett Landreth, three brothers, are the third generation from the founder of this celebrated firm, and they continue to throw into the business the enterprising energy that the father and grandfather possessed. The home grounds comprise six hundred acres, while in many parts of the United States and Canada hundreds of acres are engaged as local seed farms for such seeds as may be best suited to the several locations. Much of the preliminary work is, however, done on the home grounds. Millions of cabbage plants, for instance, were growing at the time of our visit. These will be distributed to various parts of the country, or in some instances to different parts of the home grounds, so that there shall be no possibility of the intermixture of varieties by wind or insects. As in many cases varieties are numbered by the score, this is a very important point in seed raising. But even this is not regarded as sufficient to wholly protect the variety against chance intermixture. The variety itself, having been in the first place obtained through selection, has some tendency to fight against heredity, and to vary its form; so for the firm's own seed-sowing, individual plants are selected as truly typical as possible, and preserved for reproductive purposes. When these are replanted, they are placed in the middle of a patch. Here, for instance, may be fifty acres of Drumhead cabbage. Precautions are taken so that not perhaps one head in a thousand would be aught but a pure Drumhead. But that one is sent to market with the others, and no harm

comes to anybody from that variation. But one in a thousand, saved for seed purposes, would give material for a very different story. So it becomes necessary to guard against even that one chance. Now by planting the selected typical plants in the middle of the fifty, the bees cannot get to them till they have already been over some twenty-five acres, and the chance of the plant receiving aught but its own pollen is very small. Few, perhaps, would take the trouble and go to the expense of so much precaution to have absolutely pure seeds; but those seedsmen who have a high reputation to sustain, cannot afford to risk the slightest chance of losing it. But quite independent of these precautions comes the test of the trial ground. A sample of every variety sold is sown, and samples of the same variety as sold by other seedsmen wherever they can be obtained. All of the same variety are then grown side by side, and gone over day by day, every peculiarity being entered in a trial diary. In this way they can tell, positively, whether any mixture of their own has occurred in spite of all precaution—whether it is the same as others sold under that name—whether other people's stock is true or pure, and, should it be necessary to buy in stock through some unexpectedly large demand, they know whose stock is the best to draw from. By having all the varieties under culture in this trial way, they also see which variety is the best adapted to the several uses required of them, and they learn which variety is the best to grow. By this plan there is no necessity to grow a large stock of a poor kind. Knowing absolutely which is the best, it is as easy to grow a large stock of that as of an inferior kind. How important all these laborious processes are to perfection in seed raising was frequently illustrated as we passed through the trial grounds. Here, for instance, are rows of the Tom Thumb Lettuce, many samples from different sources. There was no doubt but they were all genuine Tom Thumb, but while one sample had close, dense heads, though the burning month of June had gone over them, the row next to this from another sample had all run to seed! Thus the valuable lesson is learned as to which locality will produce a lettuce which will resist heat, and there the seed crop will be sown. In the matter of tests, also much that is actually new is learned. Here again is a lot of the famous American Wonder Pea. But alongside is one certainly four days earlier. Four days is not much to an

amateur, but when one has perhaps ten or a hundred acres, if he can get his heavy crop into market four days earlier than his neighbor, he has a "soft thing." But all this trouble has only brought us to the preservation of the variety, not merely true to name, but up to a high standard of quality. The enormous cost of getting everything ready is appalling. Here is a stable for seventy horses, or perhaps mules, in which one man is wholly occupied in feeding them. There is the blacksmith and wheelwright's shop in which every wagon, cart, plough, and implement used on the place is made, and in which models of new implements are made and tested before offering them to purchasers. Around are a score or more of huge barns, each costing from five to ten thousand dollars, fitted up with numerous, permanent and temporary floors for drying the various seeds before and after thrashing. Each of these dry out about ten different crops a year, and has to be carefully swept and cleaned out every time, lest perchance a stray seed of one variety may get in with another, and mix the breed. Around are some thirty tenement houses in which laborers, with their families, live and board those who are single and have no homes of their own. At our visit some one hundred and fifty hands were employed on the seed farm in this way. These plant and weed, and reap and thrash, and yet the work is but half begun. It has to be barrelled or bagged, as the case may be, the barrels stored away in huge granaries, and the bags hung up in dry barns, where the air may circulate freely about them. The great work of distribution now begins. The deft fingers of women then take their turn. In the seed store and on the farm some two hundred are employed. The bags are here made, filled, closed, and so labeled and stamped that they cannot be opened without destroying the Landreth brand, and thus it becomes impossible for the firm to be fraudulently made responsible for inferior seed. Most of the work is done by the piece, and it is amazing to see the proficiency of the workers. The writer had just returned from a visit to the famous silk factory at Allentown, where he was amazed at the dexterity with which the women caught, tied and manipulated the gossamer films which were as absolutely nothing between his coarse fingers. But it is an even chance whether the seed paper maker, the package filler, or the package closer, would not beat in manual dexterity the handler of the silky threads. The filler holds a handful of

flat bags over a bowl of seed in the left and in the right is the seed measure. The left finger and thumb squeezes the bag open a little and a puff of the breath finishes the opening; while in the meantime the right hand is filling the measure and bringing up the seed. The breath has barely opened the bag before the seed rolls in. Twenty bags were filled in a quarter of a minute by the watch! Another pastes and folds over the mouth of the bag, and she keeps up with the rapid work of the filler. When the girls first get at it they manage to make about fifty cents a day; but those who become experts make from \$1.50 to \$1.75 at the work. 17,000,000 of these bags, each chromo-lithographed with the exact variety, so that even he who runs may read, had just been delivered in the rough, to be put together by the nimble fingers just described. But this even is not all. These vast acres of seeds cannot be raised without manure. The great city of Philadelphia does not furnish enough from its stables on favorable terms—all that can be had at reasonable rates is secured; for the rest South America gives up its bones, which are imported by the ship load, and converted into super-phosphate on the grounds. And all this worry, toil and trouble is to end in this little five cent package of seeds which a baby can hold in its fingers, and which we burst open and the contents scatter in a few moments of garden work almost without a second thought! Well was it said to the writer by one of these younger Landreths: "If the pecuniary returns were the only question involved, you might not find us at the head of a concern like this. Money can be made faster and with far less of the laborious than in a task like ours. But we take a pride in this great work of our father and grandfather, and in keeping up the high character connected with their great names. The great national work which they inaugurated shall not go backwards in our hands if any endeavor we can give it shall be all that is required." To the writer of this, one of the greatest pleasures of this two hours' walk was to hear no slurs on the efforts or character of any other house competing with them for the honors of eminence in the seed trade. Referring to Vick, Mr. Landreth remarked: "I never met him, but the whole seed trade of the United States should never forget the lasting debt they owe him. His intelligent efforts did more to create a demand for seeds of flowers and vegetables than anything that had been done for many years before. He not

only sowed for his own harvest, but others were enabled to reap more largely of their own harvests through the influence of the good he did."

We have not room for more extended remarks on things we saw and thought of on this brief call, but trust this slight sketch of the history of the small seed packet may at least have an interest with the reader.

MUSHROOM CULTURE.—We should be glad to know from those who have recently taken up the subject of mushroom culture in America, how they have succeeded. The following is the quantity taken from a bed in England, as given in the *London Journal of Horticulture*. It would be interesting to know if the figures of our cultivators approach these:

	Bs.
October.....	362
November.....	460
December.....	1142
January.....	768
February.....	652
March.....	707
April.....	1283
May.....	1081
June.....	686
July.....	265
	7856



They are from 500 lineal yards. These are grown out of doors. The above cut shows how the bed looks at gathering time.

CODLING MOTH.—A friend caught in two weeks, by hay bands, on about 100 apple trees, over 3,000 larvæ of the Codling Moth.

THE MANCHESTER STRAWBERRY.—The editor had the opportunity of examining this variety at Rochester, and it did not strike him that it was identical with Hovey's Seedling, as some suppose, though only a careful comparison of the two kinds growing side by side should positively determine this. Col. Wilder writes that he has made this test, and that they are not identical.

THE BEST FLAVORED STRAWBERRIES.—Once on a time there was a great fruit growers' convention, and a great fruit grower gave his opinion that so long as a strawberry was big, and bore abundant crops, the public did not care whether it was sour or sweet, as they had to put sugar with even the best. It was a surprise to a few of the hearers that this sentiment was applauded. The true flavor of a strawberry will always tell even through the thickest saccharine disguise, and thus the best judges continue to take in true strawberry sweetness among their "points" in pomological decisions.

In a letter from Col. Wilder, overflowing with his old-time enthusiasm, he describes his tests among the strawberries this season, and regards the three best flavored fruits, among sixty kinds, as Duncan, Triple-Crown and Wilder. He also has a good word for Sharpless and Bidwell.

SCRAPS AND QUERIES.

PEACH TREES IN FENCE CORNERS.—"Beatrice" says: "I admire your note on peach trees in fence 'corners,' but you omit to say what I believe to be a fact, that the 'corner' tree is always a seedling, and that a seedling tree is healthier, as a rule, than a grafted one."

SEEDLING STRAWBERRY FROM W. F. BASSETT, HAMMONTON, N. J.—Mr. B. sends us a seedling of some promise in order that we may judge of its carrying qualities, of which we can say that it is very superior. They reached us as if freshly gathered from the plant.

ASPARAGUS.—Mr. J. B. Moore sends some samples of asparagus in bunches of twelve stalks each, weighing respectively 1 lb. 10 oz., 1 lb. 12 oz., 1 lb. 10 oz., and 1 lb. 8 oz. We may remark for the information of those sending asparagus

long distances, that it should not be packed too wet. Asparagus is succulent. It has moisture enough—all that is needed is to prevent its evaporation, not to add to its quantity.

We have, since the above was written, the following note from Mr. Moore:

"In regard to the asparagus, we are sorry the specimens reached you in so poor a condition. It was the quality, uniformity of color, &c., that we desired you to see and test more than anything else. You note that the bunches weighed about one and one-half pounds. In regard to the size, we would say that on June 10th, last, we exhibited specimens before the Massachusetts Horticultural Society that weighed three pounds and over to the bunch of twelve stalks. 'Moore's Cross-Bred' asparagus is perfectly distinct from other varieties, and excels in size, quality, uniformity of color, and large yield."

EUROPEAN WALNUTS IN ARKANSAS.—Dr. Geo. H. C., Fort Smith, Arkansas, desires to know whether this walnut is grown to any great extent in this country, and what is the probable chance of success in Arkansas.

Trees one to two hundred years old exist in Germantown, and they usually bear very well in some years; in others produce none at all. The reason for this has never been understood, unless some recently discovered facts in relation to heat and male flowers should explain it. In the hazel nut there is evidence that a degree of heat, which is not sufficient to advance a female flower, will advance a male flower, and in some seasons these flowers advance too early to be of use in fertilization. If we can find room we shall publish the paper soon. It must depend on actual experience how successful the European walnut is in Arkansas or Texas. Has any one a fruiting tree? and if so, will they kindly give us their experience?

FORESTRY.

COMMUNICATIONS.

GROWTH OF TREES AT BRENHAM, TEXAS.

BY WM. WATSON.

As there is so much talk about forest trees, etc., I thought I would give you some items

about the growth of trees on my sand hill. About thirteen years ago I planted a *Cunninghamia sinensis*; it was about six inches high; in the next ten years it did not make one foot of growth; then it started, and to day it is fourteen feet high and the most beautiful tree on my place. I have a *Deodar* Cedar nine years

old, sixteen feet high. Tulip Poplars I bought from you twelve years ago—one foot then—are now, some of them, over thirty feet high. Live Oaks, twelve years from the seed, are now twenty feet high, and over ten inches in diameter at base. Pittosporum, set out six years ago, not six inches high, are now eight feet high, and cover a space over nine feet across. Chinese Arborvitæ, nine years from seed, are now, many of them, over twenty feet high and strong enough for fence posts. All are grown on light sandy soil, without any manure. I never saw such rapid growth—altogether too fast for my wishes. I give you these points thinking you might like to know how trees grow here.

[We are very much obliged to Mr. W. for these notes. There is nothing more needed just now than the knowledge of what trees will thrive best in different parts of the country. We hope to hear from him again on other kinds, and to have similar notes from others.—Ed. G. M.]

EDITORIAL NOTES.

THE CULTURE AND MANAGEMENT OF OUR NATIVE FORESTS.—One of the papers read at the National Forestry Congress has been published in pamphlet form, of which a copy is now before us. It is "on the Culture and Management of our Native Forests," by H. W. S., Cleveland, well known for his intimate knowledge of this subject. It is practical knowledge like this that people want. At the meeting at Rochester it was among the suggestions made that societies should freely issue information of a practical character. Why not begin with a cheap tract like this?

PROFITABLE TREE PLANTING.—Mr. Wm. Saunders, of the Agricultural Department at Washington, gets down to the marrow of the question in the following paragraph:

"Whether it is more profitable to plant trees for the sake of their timber than it is to plant cereals and other crops for their food value, may be left for farmers to decide; but to plant one hundred acres in trees with the view of increasing the rain fall on the adjoining one hundred acres of arable lands, seems to us a very weak proposition."

TIMBER IN VIRGINIA.—We learn from that excellent mining and industrial journal *The*

Virginian, that the owners of the Craig Creek slate quarries in that State estimate that on the 5,000 acres of land bought by them there stands, where easy of access, oak timber enough for a quarter of a million railway ties. This land is well covered with white, chestnut and other oaks, white and yellow pine, and other varieties of timber trees.

SECTION OF SEQUOIA.—Can any one tell us what became of the section of the great mammoth tree of California, which was exhibited at the Centennial?

FOREST FIRES.—Dr. Warder believes keeping out underbrush from forests may do as a remedy against forest fires; but is not a desirable practice, as it prevents new forests from succeeding the old, when the mature ones are cut away.

FORESTRY AT CINCINNATI.—Over one hundred papers were presented to the Forestry Congress which shows the wide-spread interest taken in the subject. There were too many to read and discuss, and, from a list of the titles before us, we should judge many of the best papers are among those not read. These will appear in the proceedings which we understand are now in course of publication.

At Rochester, a proposition was made by Dr. Warder to unite the old American Forestry Association with the new Forestry Congress, and, in the probability of the union, to meet at Montreal the day before the next meeting of the American Association for the Advancement of Science, the time appointed for the meeting of the congress. This involves the retirement of Dr. Warder from the presidency of the Association. It is not too much to say that it is to the long years of labor of Dr. Warder, chiefly, that such a meeting as that at Cincinnati was rendered possible, and to his personal efforts at that time is due much of its success.

DURABILITY OF TIMBER.—It should not be forgotten that there are often circumstances independent of the quality of wood which decide the question of durability. A few days ago the writer examined three oak posts, all made at the same time from the same tree, two at the bottom of a hill, one on high ground on the hill side. Though all the same size, the two lower ones were rotted off near the ground; the one on the hill side is as good as ever.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

HISTORICAL NOTES ON THE ARBORVITÆ.

[From notes of some verbal remarks made before the Academy of Natural Sciences, of Philadelphia.]

Mr. Thomas Meehan gave in detail the reasons given by various authors for the name *Arborvitæ* in connection with *Thuja occidentalis*—reasons unsatisfactory even to the authors who advanced them. He referred to the statement of Ray, in his *Historia Plantarum*, that the tree was first introduced from Canada to France and named *Arbre de vie*, by King Francis the 1st. Francis died in 1547. The seeds from which these plants were raised, could scarcely have been obtained in any other way than through Jacques Cartier's expedition, say in 1834, and we may therefore conclude that *Thuja occidentalis*, was among the first, perhaps the first North American plant to become known in Europe. Parkman, in his *Pioneers of France*, graphically describes the sufferings of Cartier's band, during the winter of their encampment near the junction of the River Lairet with the St. Charles. Twenty-five died of scurvy, and the rest were sick but two. A friendly Indian told him of an evergreen which they called "Annedda," a decoction of which was sovereign against the disease. In six days the sufferers had "drank a tree as large as a French oak," the distemper relaxed its hold, and "health and hope began to revisit the hopeless company" (p. 195). This Annedda seems to have been identified with the white spruce, *Abies alba*, and is, as I am informed by Dr. W. R. Gerard, the same as the Mohawk "onnita," and the Onondaga "on netta." According to Rafinesque the spruce beer of the Indians was made of the young tops and young cones of this tree boiled together with maple sugar, and was one of their famous remedies for scurvy. Rafinesque also says that a decoction of the leaves of the arborvitæ was an Indian remedy for scurvy and rheumatism; besides, the leaves, with bear's grease, being used externally. Rafinesque, however, believes

it was the white spruce which saved the lives of Cartier's band, and if the "Annedda" of the Indians is really the white spruce, the evidence through the statement made so soon after Cartier's expedition that the health-giving plant was the "Annedda," is strong. But spruce beer could not have been made in the winter season—the leaves only were used. There is no evidence that the white spruce was known in Europe till towards the end of the 18th century. It is but natural that whatever the tree might have been, it was a veritable tree of life—an *arbre de vie* to Cartier's men. They would certainly make every effort to take with them to their native land so valuable a tree. But we have no reason to believe that they attempted to introduce the white spruce. There is, as we have seen, good reason to believe that Cartier took the *Thuja occidentalis* to Europe, and it is on record that his royal patron, a few years afterward, distributed the tree as the *arborvitæ*; and, notwithstanding the seemingly positive evidence that the tree was the white spruce, Mr. Meehan thought the *Thuja* had some ground for disputing the claim. At any rate, whichever may have been the real tree, he could not help suspecting that the name "*arborvitæ*" had some relation to this touching episode in the history of the Cartier expedition.

EDITORIAL NOTES.

AN ENORMOUS FLOWER.—There are some flowers which approach the famous Victoria in size. At Kew they have an *Aristolochia*, *A. Goldeana*, a sort of "Dutchman's Pipe," with a flower which is eighteen inches in diameter. Such a "pipe" as this ought to make very happy the genuine lovers of the weed.

COLOR IN THE DARK.—If we take a blue Lilac and grow it in the dark, the flower becomes white, at least this is our belief, though we do not know this from personal experience. We should suppose this would be the case with all flowers, and that if a blue hyacinth were made to flower in the dark it would become white; but a hyacinth that flowered underground was placed

before the Scientific Committee of R. H. S. by Mr Cummins, gardener to A. H. Smee, Esq., Wallington. The spike in rising had encountered a stone, and as it could not go up it went down and developed its flowers six inches below the surface. The foliage was blanched, but the flowers were richly colored with the proper blue of Baron Van Tuyl.

RAINFALL IN UTAH.—A European scientific journal places great stress on the following from a Boston paper :

"Horticulturists generally take the view that tree planting has a tendency to increase the rainfall, while the reverse is the case in sections denuded of trees. The correctness of this position is illustrated from the fact that greater rain-falls have occurred in Utah during the past season than had occurred previously since the Mormons have held possession of that territory. During the past ten years large numbers of trees have been planted throughout the farming sections of the territory, and the agriculturists are now beginning to reap the reward of their perseverance and foresightedness in this regard. The subject of tree planting is one that has attracted universal attention during the last decade, and its benefits are beginning to be appreciated."

To make the statement complete, it should be added for every tree planted by the settler, they cut away perhaps a thousand of the native trees on their mountains. There is not a thousandth part of the timber to-day in the Utah Territory there was ten years ago. About all the planting done in Utah has been fruit trees, which one would not suppose to have much "forest" influence. Outside of the Locusts and Cottonwoods of Salt Lake City, what other planting has been done in the forestry way?

SEVENTEEN YEAR LOCUSTS.—Prof. Riley notes that there are two distinct species of these. Each agrees with the other in every respect except that instead of seventeen years the other requires but thirteen to come to perfection. The seventeen-year is named *Cicada septemdecim* by Linnaeus; the thirteen, *Cicada tridecim* by Riley. We should fear that in a case where there was no distinction, some rascally dealers could readily impose one specimen for another on the unsuspecting purchasers.

WHOLESALE COINING OF COMMON NAMES.—In referring to a plea for the manufacture of common names in advance of their becoming common (page 94), we remarked that Dr. Gray was referred to in Mr. Robinson's letter as having furnished an illustrious example which he was

merely following, and that if Dr. Gray had ever been led into that practice he was probably sorry by this time that he ever attempted it. In the last issue of *Silliman's Journal*, page 493, we read as follows from Dr. Gray's pen :

"We have come to agree with De Candolle, in urging that while vernacular names, *i. e.* common names, are freely to be used in their place, they ought never to be made. A deliberately manufactured vernacular name is a contradiction and a counterfeit. Exceptions there may be where a generic name may be aptly translated, but these are few."

TREE FLOWERING WHITE MIGNONETTE.—It is just where we look for the rapid multiplication of easy common names that we find a new variety of the common Mignonette referred to as *Reseda odorata prolifera alba*.

SUBSTITUTE FOR QUININE.—There seems to be no doubt but that a species of "Sage Brush" which grows on the alkali plains of the West, *Artemisia frigida*, one of the wormwood family, has properties so nearly akin to quinine, that it may possibly take the place of real quinine. One teaspoonful of the extract is used in agues in a glass of hot lemonade, before the chill comes on.

ENGLISH NAMES.—The London *Gardener's Chronicle* thinks the effort to make English names by translating the Latin ones no great success. Even, it says, should the names do for writing, they would scarcely do for "common names" without causing embarrassment sometimes in good society. For instance it has been proposed to call *Cypripedium caudatum* "The long-tailed lady's slipper." We can get along very well when we write it, providing we do not forget the hyphen, but in conversation there might be many an inquiry as to the kind of lady intended.

A HYBRID COTTON PLANT.—The daily papers have accounts of a new cotton plant raised by hybridizing the Okra and the common cotton. To a botanist it seems doubtful that two genera like *Hibiscus* (okra) and *Gossypium* (cotton) should be successfully hybridized, though the genera are so closely related that such a union could not be pronounced impossible. Newspaper statements of such facts as these, however, generally require confirmation.

OPUNTIA RAFINESQUI IN CANADA.—This pretty hardy Cactus was recently found at Point Pelle, the most southerly point on the mainland in Ontario, by a little botanical party in which

were Mr. Wm. Saunders, the entomologist, and Dr. Burgess, Professor Macoun and his son, an energetic young man of twenty years. Some other plants new to Canada were also found, among these the Tulip Poplar, Red Mulberry and the Nettle tree. The Tulip tree was very abundant.

HELIANTHUS MAXIMILIANI.—In the description of this pretty sunflower in Meehan's "Native Flowers and Ferns of the United States," Lawrence, Kansas, is given as about the most northern point that the plant had been found up to that time. Professor J. C. Arthur, in his "Fifth Contribution to the Flora of Iowa," now notes that it has been found plentiful in Emmett County, Iowa, 800 miles north of Lawrence.

DAMAGE BY CRICKETS.—A writer in the *American Naturalist* has noticed a common field-cricket gnawing at a kernel of corn until it devoured the germ, and early in the autumn he has found them in cornfields, eating the crowns of kernels or ears that had been blown to the ground, a result formerly attributed to mice. Moreover, crickets annoy farmers by eating the bands of cord binding the sheaves of wheat. As Mr. Webster says: "Much of the harvesting is done with self-binding harvesting machines, using cord for binding. Judge of the surprise and chagrin of the farmer when, in drawing in his stacks of grain, to find, instead of compactly bound sheaves, only a mass of unbound grain, the bands of cord having been cut in many places by the crickets."—*Independent*.

SCRAPS AND QUERIES.

GLUTINOUS STIGMAS IN AKEBIA QUINATA.—"A little boy" writes: "Father says you like to know about things nobody knows, and he says this is new and you will like it. It is about the flower of the Akebia. In the middle of the flower are five parts like five pins. I cut them out with a scissors and stuck them all over my face. They stood out straight, and father thought warts had broke out all over me, and he was scared when he looked at me. Father says this is written right, but you will spell out the big words for me."

[The editor is very thankful to this "little boy" for his interesting letter. The "pins" in the centre of the flower botanists call the pistils, the "pin-heads" being the stigmas. Many flow-

ers, when open, exude a sticky and generally sweet substance from these pin-head points; but it is probably quite new to observe that in Akebia the liquid is so sticky that it will hold the pistil out in a horizontal direction. "Little boy" will do well to keep on taking notes of such things. There is no education so valuable as that which directs the eye. We understand the little fellow is under eight years.—Ed. G. M.]

MORCHELLIA ESCULENTA.—This is the name of the plant sent to us by A. B. C., Lebanon, Pa. It is an edible fungus, and highly prized in some parts of the world.

WHITE HERB ROBERT.—"T. W." Newark, Wayne Co., N. Y., writes: "Enclosed I send you specimen of Geranium Robertianum with pure white flowers. There are a few plants growing on the edge of a moss having the normal color, on Islay Island, in Sodus Bay, Lake Ontario. I have never heard of it, and is the first discovered in this section."

[We expect to find white flowering individuals once in a while among all colored flowers; in some families more frequently than others. In the case of this geranium we have never known of a white form being found before. Like most albinos among plants, it seems to be more delicate than the normal form.—Ed. G. M.]

PURPLE ANEMONE NEMOROSA.—In botanical works it is noted that this pretty species of wind-flower, so well known for its white or rosy flowers in the woods of the Atlantic States, sometimes has purple flowers in Oregon. Mrs. F. E. B. treats us to a pretty dried specimen of this color found at La Center, Washington Territory.

DOUBLE NATIVE COLUMBINE.—"J. T. B.," Tonah, Wis., writes: "I send by mail a blossom of wild Aquilegia. I sent a blossom to Cambridge, to Profs. Goodale and Watson. They write me it is different from anything of the kind they ever saw or heard of. I found the plant while in bloom last season, and removed it to my garden; the blossoms are as large again this season as last. The one I send you is the last on the plant, and is one-third smaller than the first ones."

[This is a double variety of Aquilegia Canadensis, and the first of this species we have ever seen. The European species have often double forms, as we see under cultivation. A double Aquilegia is always interesting from the manner in which the petals are fitted into one another like a long string of empty flower pots. The

finding of this double variety adds another to a long list, showing that nature as well as "the skill of the florist" is equal to the task of raising double flowers.—Ed. G. M.]

FRUIT OF THE PAPER MULBERRY.—"M. C., Atlanta, Ga., writes: "We mail to you a box containing a "nondescript" a party in Middle Georgia sends us for a mulberry. It is unlike anything we have ever seen. Is it not an abnormal condition rather than a natural growth?"

[This is the fruit of the paper mulberry—

Broussonetia papyrifera—the tree from which the Chinese make much of their paper, and the fruit of which is rarely seen in this country. It is the general impression that the trees introduced into this country were male, and the increase has been by root cuttings from these original trees. If, now, some of their descendants have taken to bearing fruit, it will add another instance to a list by no means short, that plants can, at times, change their sexual characters independently of seed.—Ed. G. M.]

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

COMMUNICATIONS.

BULB GROWING IN HOLLAND.

BY BURNET LANDRETH.

Hillegom is our objective point and to reach it we go from quaint old Amsterdam to Haarlem, through a country of wind-mills and ditches—water on every side—ditches, canals, rivers. the divisions between fields, not fences, but open ditches three to thirty feet wide, navigable for long narrow flat boats on which the farmers transport their hay, potatoes, cattle, manure, as wagons are almost unknown; indeed they could not be used for want of bridges,—the boat is all important. The size of the fields vary from two to ten acres, seldom more, principally down in rye grass for pasture. Another striking feature is the noble avenues of Linden trees; every farm house has its line of approach and every town its avenue—sometimes trimmed flat on both sides like a wall; the branches interlacing, at other times standing alone and trimmed like so many columns.

Finally we reach Haarlem and put up at the Hotel Funckler, dining with a lot of gay army officers just the same kind of rollicking boys as they always are.

We find ourselves in an historic city. It gave birth to Coster who it claims was the real inventor of printing—what a lot of fellows invent-

ed printing! It gave the Spaniards trouble to take, tho' they did it after killing ten thousand in the siege and two thousand more in the massacre which followed. It was a nursery of art and to-day possesses fine pictures.

It is a town of sixty thousand inhabitants and with its suburban surroundings is the seat of residence of large numbers of wealthy merchants from Amsterdam thirty minutes distant, and here may be mentioned the refinement seen among these true Dutch people. They are courteous and sincere, they are highly educated, wealthy, always doing for themselves or others—none can be charged with idleness. None are drones, as too often is the case in this country with those who have been favored with wealth left to them by others. In Holland it is disreputable to have nothing to do—however wealthy, however high in social position.

The business communities speak English very generally, so intimate are the commercial relations with Britain; it is taught in all the schools and in the towns English habits are more to be observed than elsewhere on the continent. Indeed the better class of people are so English in appearance as often to be mistaken as such, and this applies particularly to the young ladies—blue eyed, light haired, rosy cheeked, splendid teeth and altogether lovely. Many odd sights are to be seen in the streets and particularly in the market place. They seem to do many

things by the rule of contrary; they sell their fish alive and the dead ones they throw away. They sell, what do you think? Water! and what else? Fire! They anchor their boats by the stern, the carpenter pulls the plane and pushes the draw knife, the sawyer cuts fine wood by drawing the cord wood sticks over a fixed saw blade.

For two and a half centuries Haarlem has been celebrated for its culture of bulbs. Before Pennsylvania was settled speculation ran wild on Tulips and Hyacinths—gambling in imaginary stocks was pursued then and there as at present in our money centres.

It is recorded that six thousand dollars was paid for a single bulb, two thousand dollars being a common price; the Government finally declared such sales illegal and they were thus suppressed. To-day propagators frequently pay twenty-five to thirty dollars for bulbs of rare new varieties.

The culture is now principally pursued in the vicinity of the town of Hillegom on the edge of the reclaimed land of Haarlem Lake. To reach it we take carriage and drive over a prairie-like country principally devoted to pasturage, wind-mills in every direction, some devoted to grinding grain, most of them for pumping water from the lower ditches to the higher. Looking from the train yesterday we sighted seventy-five wind-mills at one time.

Ditches on every hand, water everywhere within two or three feet of the surface, the soil black and covered with a luxurious sod of rye grass upon which feed thousands of sheep, geese and Dutch cattle, the latter closely allied to the Holsteins now becoming such favorites with us; 'tis odd to see the cows blanketed, a system pursued with all the milking animals. The milk is turned to butter and cheese for export to England; there it has a famous reputation.

The roads dressed with sea gravel and sand from the neighboring dunes, well kept, and without fences. No senseless tax here or elsewhere on the continent on the farmer to keep up fences to protect his crops from road cattle—only in America is liberty confounded with licentiousness.

We drive on through hamlets and past fine country seats—long drawn out mansions set in the midst of horticultural embellishment 'neath noble trees of holly, yew, lime and oak, and in the distant vistas herds of deer; on the lakelets flocks of swan. Nothing in comparison with the

great show places of England, but occupying a middle ground, and filling the position with a quiet dignity. The Dutchman does not go beyond his means, what he does he does well, and he keeps his place in good form.

The Haarlem Meer was reclaimed in 1840 and gave up to culture five thousand acres of land, now valued at an average of four hundred dollars per acre. It now supports a population of ten thousand people. It is on the borders of this reclaimed land Hillegom is situated and we must hurry on or the bulbs will be out of flower. Every one grows them; if not an acre, a rod or so; the aggregate area annually under culture is estimated at eight hundred acres of Hyacinths, seven hundred acres of Tulips, four hundred acres of Crocus, five hundred acres of other bulbs.

The estimated value of these various bulbs is two thousand five hundred dollars per acre for Hyacinths. Nine hundred dollars per acre for Tulips. Eight hundred dollars for Crocuses.

The crops must needs bring much money, as the expenses are exceedingly heavy, the value of suitable land before preparation being five hundred to eight hundred dollars per acre. After securing the land it must be prepared and this is a very expensive business; drainage, spading, manure, hauling sea sand and other costs running up two thousand to four thousand dollars per acre and then only available for bulbs every fourth year. Thus nine to ten thousand acres are in the bulb rotation and all necessarily of this costly prepared land.

Cow manure only is used,—they say it is best, but perhaps it is because they have more of it than any other. A Hyacinth in marketable form is four years old, sometimes five, and has been handled about twenty times a year, or one hundred times in all. The various sorts and colors are classified in planting, and the bloom is only allowed to develop sufficiently to prove the variety and color. It is then cut off; the writer saw hundreds of wagon loads of blooms thrown into the ditches or piled up for manure. Large quantities of blooms are boxed and shipped to London by steamer from Flushing.

The effect during the season of blooming about the first of May is most brilliant, fields here and there of three, five, ten acres, a blaze of scarlet or a cloth of gold; everybody grows them, one sees them extending in all directions, field after field or small patches alongside the thatched cottage of the peasant, making it for the time a spot of beauty.

EDITORIAL NOTES.

ROCHESTER NURSERIES.—These suffered severely during the times when business generally was depressed, and it was pleasant to find during a hasty visit to the flower city recently that, though no new firm had ventured into business, the older ones were in a measure prospering. Some grounds are scattered, and cannot easily be reached by a hurried circuit, but the writer managed to make brief calls on Ellwanger & Barry, Gould Brothers, W. H. Little, H. E. Hooker, and the great seed firms of Vick and Hiram Sibley, all of whom seem to be prospering. H. E. Hooker has been prostrated by the blow that compelled Vick and Stone to give way, but he was able to be out for the first time on the day of our call. We have to go to press so soon after the editor's return, and there has been little time to write much since; but he hastens to thank the numerous friends he found there for the many kind attentions everywhere offered him.

THE DETROIT CARNATIONS.—We have another communication from Messrs. Breitmeyer, written in a good spirit, and from this point unobjectionable. But the matter has grown to be a personal one, and the further discussion would not interest many readers of the magazine.

THE APRICOT.—Pliny, as well as Linnæus and most modern botanists, includes amongst Plums the Apricot (*Prunus Armeniaca*), a tree most extensively cultivated, and which sows itself very readily in cultivated grounds over South-eastern Europe, Western Asia and East India, but its native country is very uncertain. The ancients called it *Armeniaca*, as having been brought from Armenia into Italy, where it is not indigenous; also *Precoqa*, *Præcoqua* and *Præcocco*; and under one or other of these names it is mentioned by Dioscorides, by Galen, by Columella (who is the first who speaks of its cultivation) by Pliny (who, about ten years after Columella, asserts that it had been introduced into Rome about thirty years), by Martial, etc. Democritus and Diophanes give it the name of *Bericocca*, analogous to the Arabian *Berkac* and *Berikhach*, the probable origin of the Italian names of *Bacocca*, *Albicocca*, and even, according to Cesalpin, *Baracocca*; and, lastly, Paolo Egineta, according to Matthioli, has spoken of these fruits under the name of *Doracia*. Although some of these names, even in modern times, have been

occasionally misapplied to a variety of Peach, yet they all properly designate the Apricot and show that that fruit was known in very remote times. Having never been very much appreciated, except for its odor, there was not in former days any great propagation of varieties of it. Micheli, however, under the *Medici*, enumerates thirteen among the fruits cultivated for the table of Cosmo III.—*The Garden*.

GARDENING BY THE MONKS OF OLD.—The *Garden* gives this interesting note on monastic gardening in England:

"Gardening in the middle ages was one of the favorite occupations of those men who, to escape the 'madding crowd's ignoble strife,' sought a home in the cloister. Scott has happily exemplified this in Father Boniface, who, when raised to the dignity of Abbot of Kennaquhair, casts a regretful glance back to his early days spent in the monastery of Dundrennan, where he says: 'I passed my life ere I was called to pomp and to trouble. I can almost fancy I see the cloister garden and the pear trees which I grafted with my own hands.' Father Boniface's lot was cast in stirring times; while he was musing a great change was passing over Scotland. In common with other countries of Christendom, she accepted the reformed doctrines, and the Regent Murray, like our own bluff Harry,

Broke into the spence
And turned the monks adrift.

The poor abbot was glad to seek refuge in peaceful obscurity and employment in the pursuit of gardening. Thus contented, he viewed his country's troubles with a stoicism which amounted to indifference. 'What avail,' he says, 'earthly sorrows to a man of fourscore? It is a rare dropping morning for the Early Colewort.' Almost every one can remember quaint gardens which once formed part of the demesne of some religious house, now long since converted to secular uses.

"The broad terraced border at Newstead, full of old-fashioned flowers, which the brothers themselves may have planted, and which contrasts strangely with the rest of the pleasure ground laid out by Le Notre—this and many similar spots rise up before our mental vision at the mention of 'monastic gardens.' When our warlike ancestors were spending their time in fighting, and scarcely ever out of the battle and the fray, and while somewhat later on in England's history others were engaged in the peaceful pursuits of trade and commerce, the monks

were not idle. Many of them who had neither the taste nor the learning necessary for transcribing or illuminating manuscripts, nor the genius which created a painter like Fra Angelico, were nevertheless skillful gardeners. In the infancy of the science of medicine, the simple remedies concocted from the herbs which grew in the convent garden, or were gathered by the patient seeker in the woods or on the hillsides which surrounded it were much prized by the villagers; neither did lords and ladies disdain to crave advice and healing from the wise leech who cultivated his medicinal plants with his own hands, and likewise distilled from them the balms and lotions, &c., which composed his pharmacopia. Then, again, the importation of rare and new plants was frequently the work of the monks. 'An Italian traveling in England in the reign of Henry VII.,' says a recent writer, 'describes the fair gardens filled with the Laurel, the Myrtle, and all Italian fruit trees, except the Olive and the Orange. He speaks also of the numerous vineyards.'"

ROMAN FLORAL LUXURIES.—Towards the end of the Republic in Rome, to which already almost the whole of the then known world was subject, luxury was at its height. The riches extorted from the subjugated nations were squandered in the most foolish way. There was no knowing what undertakings a man with money might not begin. The poor nightingales must give up their tongues to furnish a *ragout* for a Roman gourmand. A Roman fine gentleman injured his standing if he sat before his guests at the sea, sea fish, and in the interior of the country, fresh-water fish. At immense cost sea fish had to be provided here, and fresh-water fish there. Not less foolish was the custom of sleeping on rose leaves—the couches were heaped several feet high with rose leaves. Even Cicero must sleep on roses and violets. Propertius must even be buried in them, for in that case, as he sings, the earth would lie lightly on him. An effeminate Roman complains of the folded rose leaves on his couch hurting him. The Propætor Verres in Sicily was carried about in a litter resting on cushions filled with rose leaves and a bouquet of roses had to be carried before him. The supply of roses at Rome must at that time have been very great. Pæstum sent most, and after it Egypt, where the roses of Cyrrhene at that time were renowned. Great vessels came to Rome, which were only laden with roses.

This rose mania, for by no other name can one call it, contriouted not a little to raise the position of the gardener in Rome.—*Carl Kock.*

A RUSH.—Rushes are found in almost every place in the British Islands, and in both cold and temperate quarters at home and abroad they are plentiful. Before the introduction of tallow candles in this country, rushes were used by those both in high and low stations. Rushlights are still sold by our chandlers, and are used by the very poor, or for night-lights in sick-rooms. Among the peasantry in the country districts we have often met with rushlights in numbers. The poor dip the rushes in any kind of grease or melted fat they can procure. Formerly in farmers' or gentleman-farmers' houses they twisted great numbers of rushes together in Ireland, sometimes to the bulk of a man's arm, for house-lights or torches. The common hard rush is used still in country places for tying up bundles of flowers, being previously bleached a little. The bulrush and the lesser bulrush are used for mats, foot-stools, seats for chairs, for baskets and horse-collars, in Ireland; and in some of the midland districts of England they make ropes of the peel. The pith of bulrushes is used for candles. We have seen ropes and plaited whips, boys' whips, and horsewhips made from bulrushes, some being ingenious plaiting and matting for ornamental purposes. We have known it to be used (the soft rush) for thatching cottages or corn-stacks and some of the very poor have used it for stuffing beds. Rushes of all species are a very useful order of plants, and may be utilized in a variety of ways, many still unthought of. It is quite possible that a very useful paper might be made from rushes as well as from Esparto grass or wood. 'We hope the humble and despised rush or bulrush, which has a history as old as Moses, will soon receive more attention than it has hitherto obtained. This very useful plant has passed into a proverb, and is used in derision to express contempt, as, "I dont care a rush about you."—*The Builder.*

HISTORY OF THE DAHLIA.—Botanists are now mostly agreed that the florist's Dahlias have originated from two species, *D. superflua* and *D. frustranea*, though some unite them under the name of *D. variabilis*—a very appropriate title, for the variation in form and color of the flowers causes them to merge into each other, and it is not easy to indicate any clear marks of distinction. The chief character, however,

which has been selected for this purpose is the involucre (the bracts surrounding the flowers), which in *D. superflua* is reflexed, and in *D. frustanea* is spreading. In other respects they are similar, having strong succulent stems, divided leaves, and flower heads in which the outer florets are flat, broad, spreading, and richly colored, the central florets being tubular and yellow. Dahlias were first mentioned by Hernandez in his account of Mexico about the middle of the seventeenth century, and two figures are given under the Mexican names, with descriptions of their supposed medicinal properties. Some years subsequently a traveler in Mexico, named Menonville, who was, it is said, "employed by the French minister to steal the cochineal insect from the Spaniards," also noticed them, commenting on their great beauty.

In 1739 plants of *D. superflua* were introduced to England by the Marchioness of Bute, and some were grown in Madrid at the same time, and among the latter the first one which flowered in the autumn of 1739 enabled Cavanilles, a Spanish botanist, to define the genus under the name of *Dahlia pinnata*, the genus being named in honor of Dahl, a pupil of Linnæus, and the specific title referring to the form of the leaves, and this appears to be the *D. superflua* of succeeding authors. Two other forms also flowered in following years, and were respectively named *D. rosea* and *D. coccinea*, and all were figured in a botanical work published at the end of that century. The first plants introduced by the Marchioness of Bute appear to have been lost, and in 1804 seeds were sent by Lady Holland from Madrid to England, and plants were raised from these, which flowered in that and the following years. In Andrews' "Botanist's Repository," 1804, one of these, *D. pinnati*, was figured from a plant "that flowered in September and October in the open ground at Holland House, Kensington." This has large florets of a purplish crimson color, the centre being bright yellow. In the same year a figure of *D. coccinea* appeared in the "Botanical Magazine," which has small bright orange scarlet flowers, and was said to have been introduced from France in the previous year by Mr. Fraser of Sloane Square. The second edition of the "Hortus Kewensis" in 1813 gives three varieties of *D. superflua*—namely, *purpurea*, *lilacina*, and *nana*, and only mentions another species, *D. frustanea*, as synonymous with the *D. coccinea*

of the "Botanical Magazine." In this work an engraving of a single form of *D. superflua* appeared in 1817, together with a representation of one of the so-called double varieties, the first presumably that was figured. It has flat purplish florets, not cupped like we have them now, but full and of good form. In connection with these it is mentioned that it was the opinion of DeCandolle that "No blue variety of *Dahlia superflua* would ever be found, because blue and yellow being the two primitive colors of flowers, and always exclusive of each other, no blue flower ever changes to yellow, or yellow to blue." Both these drawings were made from specimens in the Comte de Vande's garden, who had imported them from France, where it appears Dahlias had then been receiving much attention for some years.—*London Journal of Horticulture*.

ORIGIN OF THE NAME HORSE CHESTNUT.—The following curious derivation of the name Horse Chestnut (*Æculus Hippocastanum*) as well as the fact giving rise to it, may possibly be as new to the readers of *The Garden* as it was to me, particularly as neither Loudon, in his "Encyclopædia," nor any French book on the subject, that I have seen, makes any mention of it. On examining, either with or without a glass, the mark left by the leaf stalk after its fall a very distinct impression of a horseshoe imbedded in the bark may be observed, bearing in relief seven dots, simulating the heads of as many nails. This mark assumes much more accurately the shape of the horseshoe on the twigs of last year's growth than on older wood. This derivation seems much less "far-fetched" than the two following given by Loudon: "It is said by some to be applied ironically; the nuts though having the appearance of Sweet Chestnuts, being only fit for horses; and by some others, because the nuts are used in Turkey for curing horses of pulmonary diseases." If fit for any animals, Horse Chestnuts are more likely to be called only fit for pigs. First, because the irony would be so much the greater; and, secondly, because horses do not eat them willingly. As to their use in the medicinal line, it is possible that Turks, being no great doctors, may administer them to consumptive horses, but they can hardly be of much use in lung complaints, as their only medicinal property recognized in civilized pharmacopeia is that of a tonic, and, as such, the tincture of Horse Chestnuts is sometimes given for gastralgia. The oil of Horse Chestnuts was,

a few years ago, greatly puffed up in Paris as a cure for gout; it was applied externally, but was of little or no use, and is now considered merely as a quack medicine. Starch seems to be the best product of these nuts, but somehow the manufacture of it has never paid in this country, although Horse Chestnuts may be had almost everywhere for the mere gathering. Like Cassava (or Manioc) and many other feculent roots or nuts, repeated washings and trituration will rid them of their bitter and acrid principle, leaving the fecula in an eatable state; the only question being that of the cost of the labor required for these operations.—*Fredk. Palmer in Gardener's Magazine.*

THE CHESTNUT (*Castanea vesca*), celebrated amongst European trees for the enormous size it will attain, is already mentioned in the Bible. Theophrastus and Athenæus give it the name of Eubœan Nut, from the Island of Eubœa, now Negropont, where it was peculiarly abundant. Pliny says that Chestnuts first came from Sardis, the ancient capital of Lydia, and not far from the modern Smyrna. Galen, who was a Lydian, confirms that origin, and says that they were also called Balani leuceni, from Leucene, situated on Mount Ida. Other writers, ancient and modern, give various Eastern countries as the native stations of the Chestnut, and even Giovanni Targioni-Tozzetti, our author's grandfather, believed them to be introduced only into Italy; but not only have the extensive Chestnut woods in the Apuan Alps and other parts of the Apennines, mentioned by Bertoloni, every appearance of being really indigenous, but further evidence that woods of this tree existed in Tuscany from very remote times, may be found in the number of places which have derived their names from them, such as Castagna, Castagnaia, Castagneta, etc. We may, indeed, safely give as the native country of the wild Chestnut, the south of Europe from Spain to the Caucasus. It does not extend to East India.—*The Garden.*

ALAN W. CORSON.—Alan W. Corson, the oldest nurseryman in Pennsylvania, died at his home in Whitemarsh, on the 21st of June in his 95th year. Like many of the famous botanists of Pennsylvania, he was self-taught in the science, or rather taught by nature with whom they were so ardently in love. He was a contemporary of William Bartram, John Evans, and other well known botanists and horticulturists, all of whom he has so long survived. For a long time

Alan Corson's nursery was the only place within many a long mile where trees could be bought. His botanical zeal led him to obtain every thing that could be had, and amongst these many were thus introduced which proved of immense service to horticulturists. Innumerable rare trees and plants are found in old gardens within fifty or sixty miles of his home, of which few now know their history, but which owed their existence to Corson's nursery. Singularly modest and unassuming, he never sought any credit for the good he did, and thus to-day very few know of the great value of his service in his day and generation. His knowledge of the botany of his district was so complete, that when any question arose among the younger folks, a proposition to submit the matter to Alan Corson, was sure to receive unanimous approbation. The love of flowers both botanically and horticulturally, is wide-spread in the country bordering on Corson's home. Many of these flower lovers would be regarded as botanists in other lands. A large number of these date the great pleasure they have had in life to the teaching and influence of this remarkable man.

THE BUSINESS OF JAMES VICK.—The four sons of Mr. Vick have arranged to continue the business of their father and under their father's name. They have the good wishes of the whole community.

MEMOIR OF CHARLES DARWIN.—By Prof. Alphonse DeCandolle. The publication committee of the "*Archives de Sciences de la Bibliothèque Universelle*" have published in their May number, a paper by DeCandolle on "Darwin considered in the aspect of the causes of his success, and the importance of his labors" which may be classed as among the most eloquent of the many tributes to this remarkable man, who, considered at first as the enemy of all religion, came in the end to be so highly venerated as to be buried in Westminster Abbey, amid solemn religious services, followed to the grave by a long course of English clergymen, who sincerely expressed their deep sorrow for the world's great loss. The fixity of species, which before his time few dared question, has been entirely annihilated and chiefly by the courageous devotion of Darwin to his work. There are few living scientific men, who receive new views with more caution than DeCandolle, and it must be regarded as among the triumphs of Darwinism, that such an eminent man is found among Darwin's warm eulogists.

THE HORSE: HOW TO BUY AND SELL, &c.—By Peter Howden, New York, Orange Judd Co. 1882.

The less a buyer knows about a horse, the more sure he is to look very wise and knowing, when he is buying one. It is amusing to note how carefully he opens the creature's mouth, and examines the teeth and gums, and how he punches the poor beast's ribs, and switches its tail, with a fool-me-if-you-can look, which almost defies the seller's trickery. After all there will be no harm in having a little real knowledge, and surely this little book will be worth all its cost to any horse buyer.

RULES OF SIMPLE HYGIENE, and hints and remedies for the treatment of common accidents and diseases. Compiled by Dawson W. Turner, D. C. L. An American edition is announced by Macmillan and Co., New York.

THE LADIES FLORAL CABINET.—We learned at Rochester that this very beautiful monthly publication has again changed hands. C. L. Allen has become the editor, and the many who know of his intelligent love of plants and flowers, and his excellent editorial abilities, will look for a wide field of usefulness by his connection with the magazine.

SCRAPS AND QUERIES.

TYPOGRAPHICAL ERRORS.—"C. Dickens Shakspeare Bryant Jones" says: "A catalogue of Mr. 'A. W., of Lawrence, Kansas,' has just reached me in which he advertises 'the GARDENER'S MONTHLY, assisted by an able corpse of American and Foreign correspondents.' Now I always considered the MONTHLY a live paper; but how a 'corpse,' no matter how 'able,' can give it increased vitality, would puzzle even a materialistic spiritualist. A corps of 'corpses,' if anything, would be even deadlier than one deserter from that graveyard regiment coming 'to re-visit the pale glimpses of the moon,' and to haunt your sanctum with baleful horticultural suggestions and 'dead issues.' The only use you could possibly have for an 'able corpse,' as I conceive, is in your Hints for the Month, where, when ripened by sun, frost and time, and properly composted, you might work it in with part sand into pots, or in the garden borders, where it would become 'a brother to the insensible rock, and to the sluggish clod which the rude swain turns with his share and treads upon.' Excuse me, Mr. Editor, for 'dropping into poetry' like Mr. Wegg; but the subject is so

'fertile' in suggestion, that a whole 'corpse' of dead writers starts up unbidden, every fellow wishing to put in a few remarks in his own peculiar vein."

[All of which is jovial enough, and in which hilarity we should perhaps be tempted to join, did we not know of our own troubles with compositors and proof readers. A printer seldom thinks of what he is doing, and if a writer made a flourish to the s, so as to look like an e, it would be the most natural thing in the world for him to set up 'corpse' for corps; especially if, while handling the type, he was thinking of the last base ball match.—Ed. G. M.]

FRENCH WEIGHTS AND MEASURES.—"D. W. A." Waukon, Iowa, writes as follows: "On page 176 of the MONTHLY is an item 'French Fruits in England,' all in English except one word, and that renders the whole item unintelligible to 49,000,000 of the American people, including myself. Now is it necessary, for the advancement of science, that the measures of fruit, as well as the names of flowers, should be given in an 'unknown tongue?'"

[The decimal system of the French is so immeasurably superior to the old English method of calculation, that we are surprised that in a country where dollars and cents have driven out "pounds, shillings and pence," 49,000,000 people have got no further towards decimal measures than were their great grandfathers, before their grandsires declared their independence of other absurdities. But we must take things as we find them, and for the benefit of our despairing friends say that a gramme is equal to the thirtieth part of an ounce, and a kilogramme is two pounds and three ounces of our stupid system. Our ton of 2,240 pounds is 100 kilogrammes, and on this basis all the lower weights are proportionately graded. In measure the French also begin with the 100 quarts, which is their hectolitre, and while we flounder through gills and pints and quarts and pecks and bushels, and one knows not what, the French simply number their litres as we number our cents in the dollar. We fancy the school boys among the 49,000,000, as they grow older, will wish their elders had adopted the French method in the public schools. We often feel for the poor things as they worry over the "examples." We should like to convert the Master of the National Grange, and to know that he had set his "lecturers" to work in the interests of this reform.—Ed. G. M.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

AMERICAN NURSERYMEN'S ASSOCIATION.—The seventh annual meeting was held this year in Rochester, under the Presidency of Mr. Wm. C. Barry. Mr. Barry is the youngest man who ever held such a position, and it was very gratifying to his many friends to note how ably he filled the position, and it must have been gratifying to him to find the meeting one of the most successful ever held. A great number of the States were represented at the meeting, and the State in which the meeting was held sent a large number. The great advantage of these meetings is the social intercourse. Men in the profession learn to know each other, and friendships are formed which often last for life. At these meetings much business is also transacted. It is a sort of commercial exchange. At this meeting it is believed that stock to the amount of at least \$100,000 changed hands.

The meetings themselves are turned to good business account. One of the great questions before this gathering was how to get better accommodations from the railroads for the transportation of nursery stock. Customers complain that goods are too long on the way and refuse to take them. The roads having brought the goods so far have to go back to the shipper and make him pay the freight. This entails loss of time, trouble and loss of cash. To save themselves, many roads insist on cash in advance, which has to be collected from the customer by the shipper. When these matters are brought before the railroad companies for redress, the complainants are told—at least so it was represented at Dayton—that their business is but a trifling one, and not worth consideration. It so happens that the business is really a very important one to the transportation companies; so a committee was appointed at Dayton to prepare statistics and lay them before the railroad companies that they might themselves see it was no trifling affair that they had to deal with.

At this meeting the committee reported that the nurserymen did not want to let people know

their business, and so they would not give any figures, and the railroad companies reported that they also did not care to expose their business and so they would give no figures, and the report therefore was "nothing can be done." It seems very strange that we may know the number of barrels of apples, bushels of corn or head of cattle shipped from a district, or carried over a road, but it is a "business secret" when trees are concerned! There is no doubt from all this that the inference will be that the railroads are right in their taunt that it is a "small business." When a lady is twenty she does not care who knows it, but the census-takers declare that many a lady of thirty appeared to them to be forty or more. One would think if the enormous business was done, as is represented, there would be no harm in publishing it. This will be the impression and we regret very much that it is, because we know that it is a wrong impression. There is an enormous business done beyond what the community has an idea of, and we hope the Association will yet find some way to get at the figures, and without exposing "each person's business."

In regard to the practical discussions, it was felt that a nursery business was different to most others. He who followed it had to make a want, supply the want and at the same time educate the people as to how to use properly the things which they bought. The character of the papers read were therefore such as would aid the business man in this educational work.

In regard to the general success of the business, it was believed that the profits for some years back had not been at all commensurate with the capital invested, that stock had generally been sold below cost, but the prevailing tone was that it is better than it has been.

The next meeting will be at St. Louis, with Col. N. J. Colman as President. Among the pleasant features of the meeting was a reception given by the nurserymen of Rochester, under the immediate superintendence of Messrs. Dewey, Gould and Mr. H. Ellwanger. The occasion was one long to be remembered by those who took part in it.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

SEPTEMBER, 1882.

Number 285.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There is no more frequent question than how to have good lawns under trees. Grass requires food and moisture. Trees take the food and dry the ground. It is a difficult problem how to get grass to grow under these circumstances. The best grasses for these places is *Poa compressa*, the flat-stemmed Poa; and the sheep-fesque, *Festuca ovina*. The drying out by the roots of the trees can scarcely be prevented; but a good top dressing of manure or compost should be given the grass under trees every autumn.

Then it is often asked, What evergreens do best under trees—especially evergreens for hedges? Of the coniferæ there is none that likes to be dry and shaded. The American yew is, perhaps, as little injured as any. It is best to employ deciduous plants where we must have growth under large trees. The different kinds of Privet do pretty well. The old-fashioned burning-bushes—varieties of *Euonymus*, and the Tartarian and Fly Honeysuckles do well. The Hardy Hydrangeas and *Viburnums* also do fairly well in dry shade.

The experience of the last few summers has made much change in the popular ideas of the best time for planting trees and shrubs. The

teaching of the GARDENER'S MONTHLY has always been that the chances of success are about equal at either season. If a favorable winter follows the fall, or a favorable summer follows the spring, either season is pronounced the best; when an unfavorable season follows, people say they will never plant at that time again. It is the cold drying winds of winter, or the hot drying winds of summer, and not the season of planting which decides. The last two summers have been dreadfully trying to spring-planted trees, while the very best success has been with those of the fall planting. It is remarkable that all the old theories of the best time for pruning were at length resolved into "Prune when you are ready," and it will have to be that the best time for planting is when you are ready to plant. Get trees with good roots, those which have been several times transplanted, if you can; get thrifty and not half starved trees from poor soil; do not let the roots dry before planting; prune the tops of the trees a little, and hammer the earth well in when planting, and we can afford to let the "the best season for planting?" rest with the village debating societies.

Lilies, Hyacinths, Tulips—indeed all the hardy kinds of bulbs should be planted or replanted at this season. Herbaceous plants also do a

great deal better transplanted in fall, provided means be taken to keep them from being drawn out by frost. In spite of all care, herbaceous plants will sometimes die out, and it will be a good precaution to save a few seeds and sow sometimes, of the scarcer kinds.

COMMUNICATIONS.

AMONG THE ELDER BUSHES.

BY WM. T. HARDING, MOUNT HOLLY, N. J.

Probably no tree or shrub is better known to the generality of people than the unassuming elder. We look upon it as an intimate sylvan friend, or old woodland acquaintance; and pleasantly remember it in childhood's brief and happy days, where in some neglected spot, it drew our wandering attention to its profusion of flowers or luscious looking fruit. And, although time may have greatly changed us since then yet with some of us I opine our early admiration for the beautiful has grown with our growth, and ripened with the fulness of years. And happily for those who are so constituted as to faithfully love from first to last, beauteous nature, whose endearing young charms never change. No, kind reader, the same placid features which her children gazed upon in primeval times remain unwrinkled now. And thus it will ever be to all her loyal votaries whose unswerving fealty warms the heart and bends the knee in her consecrated shrine.

But, I find I am wandering away from the fair elder tree, which, to the writer, still remains all my fancy painted it so many years ago.

Sambucus nigra is the euphonious name by which the black elder is technically recognized, and together with its varieties, is well known to the botanist and landscape gardener, who finds them useful and ornamental little trees or shrubs. And as they possess a constitution strong enough to endure every vicissitude of climate, they will flourish under every condition of life. Yet, with all their good qualities, I regret to say, are but seldom seen where they ought to grow. I trust no one will disparage them because they have seen them growing wild in and about the woods, forgetting that the most useful and beautiful trees and shrubs known to science are somewhere growing where nature placed them.

Perhaps the Elder may not appear to some

people's ideas as handsome as some other things but, as "beauty is in the eye of the beholder," let me say it, in all possible candor, I have seen many a pretty Elder. When in flower, their lovely white cymes are as interesting and fair to look upon as are most flowering shrubs. Neither do their good looks diminish later on, when bending with heavy clusters of fruit.

I presume most of your readers who are acquainted with them will remember the peculiar cut-leaved *S. laciniata*, or parsley leaved elder. But the kinds which have lately come to the front, are *S. aurea* and *S. laciniata variegata*. The first named, with its bright golden foliage, is one of the most conspicuous and useful shrubs the landscape gardener is at present using. And the second is like unto it, with this difference—it is a silver, cut-leaved variety, which produces a fine effect when in contrast with other things.

These very ornamental shrubs the writer recently saw in the shrubberies in various parts of England. I had occasionally seen them at a distance, among other things, too far off to identify, until I had an opportunity to closely inspect them in Sefton Park, and other places in the environs of Liverpool.

I am not aware whether they are to be had in the nurseries on this side of the Atlantic or not. But if not already here, they will, I feel assured, be soon found in company with other good things of recent introduction. Then there is the old *S. variegata*, *S. alba punctata*, *S. pyramidalis*, and several other kinds, all distinct in habit, and deserving of cultivation. I have an idea that *S. aurea* and *S. laciniata variegata* will prove useful adjuncts to the mixed tropical plant beds or borders in the summer season. They would be equally effective, too, as isolated specimens on the lawn.

CUTTINGS FROM OLD WOOD.

BY MISS M. M. B. RODMAN, WASHINGTON, N. C.

Seeing your correspondent's note on *Hydrangea* cuttings reminds me of a little bit of my own experience. I had occasion to cut down a large pink *Lagerströmia*, and sawing off the larger branches, set them in the earth to be used as bean-poles. The Lima beans were planted all around the posts, shading the ground thoroughly. I was surprised to find the following spring that every pole was throwing up thrifty young shoots; they bloomed when two feet high, and suggested the thought that a hedge

made of the different colors would be very pretty.

It may not be generally known that *Rhynchospermum jasminoides* is hardy in this climate. I have one trained over the doorway, on the north side of the house, which has been out four winters, and has been, for several weeks, covered with its lovely white blossoms. It is an object of universal admiration.

YUCCAS.

BY G. ONDERDONK, MISSION VALLEY, TEXAS.

Recent references, in the *GARDENER'S MONTHLY*, to the propagation of *Yuccas* by cuttings recall some of my own experience. I have found the leaves of the *Y. gloriosa* very valuable in the vineyard for binding the young shoots to the trellis. I like them for this purpose because they give way just about the right time and thus save trouble of removal, to say nothing of their convenience and cheapness. We also use the leaves at the packing house in making up packages of trees, plants, &c. Therefore an increase of a convenient supply became an object.

It frequently came in our way to bring an entire shoot, or even a whole tree of yucca to the packing ground at once. After using all the leaves we have been in the habit of cutting each shoot to about two or three feet in length, leaving the terminal bud at the top. These shoots were then set as cuttings, leaving the tops just above ground. We never gave any after care, and none ever failed to grow well.

About fifteen years ago I carried a branch, about two feet long, to the vineyard. I used the leaves and left the wood lying on the ground fully exposed to the sun. This was in May. During the last part of the following August (and it was one of our dry, hot summers), I noticed that the terminal bud was putting out new leaves. Turning the yucca over, I saw that on the under side two or three small roots had started. I dug a hole about eighteen inches deep and planted it. It had no subsequent care, not even the slightest stirring of the soil. Moreover, it was in a neglected fence corner where the weeds held a continual mass meeting around it. Although it grew slowly during the first year, yet it became vigorous the year following. It is now a fine specimen, and supplies a fine yearly crop of leaves for our uses at the packing house.

In a former number I read of yuccas not seed-

ing well. Every variety that has bloomed in my grounds has produced seed, and the wild *gloriosa* usually seeds very well. About fifty miles west of us, on the Nueces River, there exists in wonderful profusion a yucca which I had always thought was the *Y. filamentosa*. But the leaves are narrower and perhaps longer than the *Y. filamentosa* here from northern nurseries. This variety seeds abundantly. It is scattered, more or less, all over Western Texas, and I presume over the whole State.

PROPAGATING HYDRANGEA PANICULATA.

BY E. WILLIAMS, MONTCLAIR, N. J.

My eye has just met the note of Mr. Abbott in your June number, page 166, on propagating *Hydrangea paniculata*. My original plant was obtained in this way: A friend commended the plant to me some years ago as desirable, and gave me some branches from which to make cuttings, which I could try; he did not know they would grow.

I made thirty odd cuttings, planted them, and only one grew, the one named above. I have had better luck, and worse, since then, but to say they will grow as readily as a willow, is putting it too strong; neither will it be generally, that "they will root as readily as a willow," for I think it safe to say 90 to 100 per cent. of the latter will grow under any ordinary conditions, while from one to ten per cent. of the former I should consider a fair average under the same conditions.

I think Mr. Abbott happened to take his stakes just at the right time and attended them with favorable surroundings, and we may have as good success when we learn what those favorable conditions are. What is the experience of others in this matter?

ELBERON.

BY MARJID DIGRAM.

Elberon, on the New Jersey coast is a quaintly picturesque place. It is a little town on a strip of moorland, as full of sun and all the breezes that blow as if its resting place was by the Firth of Forth, or on the surf-margined downs of the South British coast. Some of its houses, that have not been out of the builder's hands as much as ten years, might easily claim an antiquity of half as many centuries. It is a conspicuously

noticeable fact that there is not a froward house in the village group, and even the most pretentious are models of modesty.

The irregular arrangement or distribution of these houses is excellent, and the removal of everything that would obstruct the sea-view of those which necessarily stand some distance back from the line of bluff, if not the result of unselfishness, is nevertheless a feature other similar places might copy to their credit and profit. The lack of trees, and all other impedimenta, with the continuous green, well-kept level lawn, give to the place its remarkably free, cool and agreeable aspect. Then the prevailing depressed hedge is a capital idea. Whether it is low by intention, or because it has not yet had time to grow to the usual height, I do not know. It is, at least, a happy hit, and fits in well with the other features of the place.

To speak more particularly of the hedge—or of hedges generally—is my occasion for writing this. I can see no reason why they should all, and always, be of one invariable height.

There are reasons, however, why in some cases, they should be kept low, and the sea-side village under consideration presents an instance where this exceptional treatment can be carried out with advantage to all concerned.

The full value of a high hedge could be nearly realized by laying the same hedge down, as it were, upon its side; in other words, giving it greater breadth to replace its lack of height. A line of low, widely-trimmed Osage or Hawthorn, six or seven feet broad, would be nearly, if not quite, as effectual a bar to the passage of man and the animals, as would one clipped four or five feet above the ground level. Over this breadth of six or seven feet the plants could be set in four or more lines or rows, and could be of one species only, and thorn-bearing, or of two or more, the outer of which would be of impervious shrubs, the inner of one or more contrasting species, but thornless.

A variation upon this would be to give the major portion of the hedge's thickness to resisting plants, whilst the inner margin, seen from the windows of the house, would be composed of herbaceous sorts, with ornamental leafage, which would be especially striking when set against the deep green low-clipped shrubbery.

As a further deterrent, in special cases, to reckless two or four-footed pedestrians, a line of posts could be set midway of the hedge's width, the said posts to be connected by iron rods or

chains, and posts and chains to be painted to harmonize with the leafage below.

The gate, if necessary, would be two-barred and hung low, or if absent, the gate posts, set widely asunder, and rising but a foot above the depressed hedge, would be encircled by the latter. These would have as a surmounting object, a vase, to be flower-filled or ivy-entwined, or balls, either of which would suit a variety of situations.

HARDY HERBACEOUS PLANTS FOR GENERAL CULTIVATION.

BY WM. SUTHERLAND, PHILADELPHIA.

The present system of bedding out with tender plants, has been in vogue for about thirty years and has so nearly superseded the valuable class of hardy herbaceous plants that they are almost unknown to the general cultivator, excepting, perhaps, the old-fashioned Phlox, Single Hollyhocks and Pæonies and a few other flowers and herbs which were grown in the gardens of our grandmothers.

Very many intelligent people are becoming tired of the set figures, glare and sameness of the beds that are so universally used for summer decoration, and are anxiously looking about for something to take their place in a measure.

We would not wish to do without bedding-out plants entirely, for they are very striking and beautiful in certain positions, but that they should entirely supersede prettier and more interesting flowers is not desirable.

The tender bedding-out plants have to be renewed every year at a considerable expense and require very careful attention for success. They only furnish flowers from about the middle to the last of June until the first frosts, a season when people are taking their summer vacations; the beds for the remainder of the year are bare earth or a mass of decaying vegetation.

The hardy herbaceous plants cost but little more at first, require very little attention for success and they live and increase year after year. With a dozen different kinds, flowers can be had from April until very severe frosts; with a larger number, every color, and a great variety in form and fragrance will be represented. Many of them are evergreen and would look finely as single plants, or in beds all the year.

Hardy plants are usually arranged in borders with the large growing varieties at the back and a gradation in size to the small ones on the edge, but we need not be confined to this arrange-

ment. I believe that when the same amount of study is bestowed on this class of plants that has been on the tender plants, equally as good and far more interesting effects can be produced.

Grass beds are exceedingly graceful and pretty. The *Eulalia Japonica*, *Zebrina* and *Variegata* are both remarkably pretty; *Erianthus* *Ravennæ*, *Festuca glauca* and many others are fine.

The lilies and all hardy bulbs are included in this class. The Tulip is well known as a showy early bedding plant.

The great variety of beautiful Phlox, in shades of pink, purple, red, crimson, salmon and white, variously marked, are being added to every year by foreign cultivators, and the old single Hollyhock has been transformed into one of our most beautiful flowers, with double and single varieties, having shades almost black, copper, rose, yellow, red, white and intermediate shades. These and the Larkspurs have been greatly improved, mostly by foreign cultivators, but they are very little known here. A large list of very fine hardy herbaceous plants might be mentioned in the *claus* spoken of, but I will not take the room in this article.

There is a broad field for improvement in many of the herbaceous plants by hybridization, selection of seeds and the cultivation of sports, and it is to be hoped that many cultivators will experiment on this class of plants and make known their results through this paper or otherwise.

BERMUDA GRASS AND LAWNS.

BY MARJID DIGRAM.

The editor of *The Rural New Yorker*, in the January number of the GARDENER'S MONTHLY, says, that he planted a sample of Tennessee Bermuda grass in a dry muck-and-sand soil, and that it thrived wonderfully, that is to say, it spread in one summer over a space fully seven feet in diameter. A very good record, certainly, to which the editor adds, as a further recommendation of the grass, that it would probably prove hardy in as trying a summer and winter climate as that of Central New York.

The sand-and-muck soil was the feature of the experiment that attracted my attention, and I wondered how rich a soil, this particular one, used and mentioned by Mr. Carman, was. Suppose the muck was quite absent, or present in but small quantity; for instance, we will say, such a soil were tried as may be found in the

yards and gardens of our New Jersey seaside villages and summer resorts. Would it answer?

If such slightly fertilized earth as this would satisfy the demands of the plant, then the Bermuda grass of Tennessee is just the bit of vegetation needed in these places to serve the twofold purpose of giving the greenness or floor of positive color obliquely beneath the eye which that organ naturally demands, and to cover from sight the now almost universal surface of glaring, eye-irritating whiteness.

At Saint Augustine, on the coast of Florida, some several years since, I saw in a yard surrounding the residence of a brother of the late Vice-President Hamlin, a nicely trimmed area of lawn, the grass used in which was called the Meskit or Muskit. This grass has either a running rootstock, or a creeping stem, spreads rapidly and is very persistent where once set. Though very coarse, it in this case, completely covered the ground and was kept in excellent appearance by the frequent use of the lawn mower. Unfortunately the Meskit is, I believe, a semi-tropical grass, or it would answer perfectly the needs and demands of a long strip of sandy sea-shore, that, in fact, which, commencing at Squan, continues indefinitely southward into the gulf.

EDITORIAL NOTES.

SINGLE DAHLIAS.—There are few flowers more beautiful, or which make a more brilliant show in the fall of the year than the highly improved double dahlias. They require some care to cultivate properly, or they degenerate; some, however, more readily than others. In old times no one would look at a single dahlia, but the florist has placed his improving fingers on them, and with such grand success that they are actually competing successfully for popularity with the double ones. Last year there were only orange and scarlet shades, but we hear there are now a large variety, and such as to command admiration wherever seen.

ROSE BARONESS ROTHSCHILD.—This was the great sensation among the roses exhibited at the June meeting of the Germantown Horticultural Society. It was a sort of salmon pink in color, four inches across, and as "double as a rose."

DATURA ARBOREA.—In a garden in Pittsburg recently we saw a plant of *Datura arborea*, which must have been eight feet high, and it

had what seemed to be hundreds of its large trumpet-shaped, sweet white flowers. The plant does not stand frost, but it is very easily preserved during the winter in a cellar. It is related to the common Jamestown or "Jimson" weed, which is well known as a troublesome annual in cultivated ground.

SYNONYMS OF ROSES.—It appears modern catalogues have many new names for old things. The *Journal des Roses* has recently published a very useful list of them, from which we take the following, which refer to kinds well known in America:

<i>Old Roses</i>	<i>New Names</i>
Adam	President
Albion	Mad. Plantier
Bougere	Clotilde
Clara Sylvain	Lady Warrender
Comtesse de Labarthe	Duchesse de Brabant
Eugenie Jouvain	Mme. Roussel
Mme. Bravy	Alba rosea, Mme. de Serlot
Mme. Morin	Adel Pradel, Mme. Denis
Niphetos	Mathilde
Souvenir d'un Ami	Queen Victoria
Cramoisi supérieur	Agrippina
Virginal	Thé Mme. Lacharme
Lamarque	The Maréchal
Le Pactole	Mme. de Challenge
Narcisse	Enfant de Lyon
Catharine Guillot	Michel Bonnet
Hermosa	Mélanie Lemarié
Leveson Gower	Souvenir de la Malmaison à fleurs roses
Louise Odier	Mme. de Stella
Mistress Bosanquet	The Sapho
Rugosa rubra flore pleno	Himalayensis
Rugosa rubra flore simplicifolia	Régélina, Taicoun
Auguste Mie	Mme. Rival
Charles Lefebvre	Marguerite Brassac
Clementine Seringe	Pauline Plantier, Mrs. Wood
Comte de Paris	General Hudelot
Docteur Marx	Marquis d' Aïssa
La Reine	Reine du Midi
Le Lion des Combats	Beaute Francaise
Louise Peyrony	Lelia
Mme. Masson	Gloire de Chatillon
Prince Albert	Futur Empereur des Français
Queen Victoria	Rose-la-Reine à fleurs blanches
Souvenir d' Anselme	Enfant d' Ajaccio
Virginal	Mme. Liabaud

PAULOWNIA IMPERIALIS.—This magnificent tree has been in bloom abundantly everywhere this season. The large blue, gloxinia like flowers fill the air with a delicate fragrance, as well as attract by their beauty. The flower buds are formed in the autumn, and are more or less injured by the winter. The past season being mild, the flowers are unusually abundant. The foliage is rather coarse, and the whole habit of the tree ungainly; but its wonderfully rapid growth, as well as its sweet flowers, give it elements of popularity. One of the first trees,

perhaps among the very first trees introduced into the country, is now in Independence Square, Philadelphia. It must be about thirty-five years old. It was one of the first lot imported by the late Robert Buist, and presented by him to the city. It is probably eight feet in circumference, and may be sixty feet high. The Japanese, in whose country the tree is native, value it for timber; but we know of no experiments with it in our land. Should it be of any service in this respect, it would not take long to supply the forest waste if they were planted.

THE GOVERNMENT GROUNDS AT OTTAWA.—It is not always that bad grounds are the fault of a gardener in charge—not by any means; but yet great numbers might be brought up to popularity if only an intelligent man, with a love for his profession, and good common sense, gets in charge. It is wonderful what enthusiasm from such a quarter will do, to make all around appreciate one's work. An illustration of this is in the government grounds around Parliament Hill at Ottawa. These comprise about thirty-five acres, with several large greenhouses. No one cared particularly about them, and what was given in support was rather grudgingly given. But one with a thorough love of his profession got hold of it. He did not bury the one talent because he could not get ten, but did what he could with that which he had. Little by little his work was admired by others as well as enjoyed by himself. Now there are few things the Ottawa folks are more proud of than their government grounds, and Robertson, the superintendent.

JAPANESE CHRYSANTHEMUM FROM SEED.—At the annual dinner of the Borough of Hackney Chrysanthemum Society on the 6th inst. one of the members produced a batch of seedling Japanese Chrysanthemums. The seedlings were pretty, and not without indications of promise, but necessarily small, and requiring another year's trial. Seedling raising has been termed the poetry of gardening, and those who find pleasure in doing this can add the Japanese Chrysanthemum to other subjects. For greenhouses and conservatory decoration the Japanese varieties are of great value, and the trade growers of Chrysanthemums say that the demand for Japanese varieties is largely in excess of the incurved flowers. As a white Chrysanthemum to grow for cutting from, the Japanese variety Elaine is unsurpassed.—*Gardener's Chronicle.*

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

CANNA NEPALENSIS.

BY CHARLES E. PARNELL, QUEENS, N. Y.

The various species of *Canna* form a genus of highly ornamental foliage plants of majestic habit and tropical appearance, remarkable alike for their large and handsome foliage, as well as their beautiful and various colored flowers.

One of the prettiest and most distinct is *Canna Nepalensis*, a very beautiful species growing from four to five feet in height, with large, bright yellow flowers, which are produced from June until frost. The *Canna* is a half hardy perennial plant belonging to the natural order Marantaceæ, and this species is a native of Nepaul, from whence its specific name is derived. This *Canna* is not at all adapted for the flower border, on account of its robust habit, but for groups of ornamental foliage plants, or as single specimens on the lawn it is almost without an equal.

In order to cultivate this *Canna* to perfection, as well as to see it in all its beauty, it should be grown as a single specimen on the lawn, and in order to enable it to so grow it is necessary that it should be given a rich, loamy, very deep soil; the place where the plant is to stand should be dug at least to the depth of two and a half feet, and a good quantity of well-rotted stable manure thoroughly incorporated with the soil; if possible, add also a sprinkling of bone-dust; a strong, robust plant will require a space of about four feet in diameter. Like all of the Marantaceæ, *Cannas* require a deep, rich soil and a hot, moist atmosphere during their season of growth. During the summer season we can supply all their wants with the exception of a moist atmosphere; the best substitute for this is to give it an abundant supply of water at the roots. In order to do this it is necessary to form a shallow basin around the plant, or better still, to have the space allotted to the plant about two inches below the surface of the lawn. When hot, dry weather sets in, cover this space with about two inches of coarse stable manure, being

careful to remove all straw; once a week give it a thorough soaking of water, and if a little guano is dissolved in the water, so much the better; thus grown the *Canna* will astonish all by its vigorous growth and its tropical appearance.

A few days after frost has destroyed the foliage the roots should be taken up carefully and placed in a warm, dry cellar or under the stage of a greenhouse for the winter—they can be divided, if necessary, and planted out the ensuing season; they can also be grown in large pots for decorative purposes, with fair results if rich soil and an abundance of water be given them.

Propagation is effected by dividing the plant in the spring before planting, and also by seeds which, if sown early, and the young plants properly cared for, will produce nice plants the same season. As the seeds possess a hard integument they will vegetate much sooner if slightly scratched with a file on one side, or else placed in boiling water previous to sowing. The seeds can be sown in a well-drained pot of light sandy soil, covered slightly and placed in a moist, warm situation. As soon as the plants are strong enough to handle, take up carefully and pot off into three or four inch pots; place the pots again in heat, and keep the plants constantly growing until all danger of frost is over, when they can be planted out in the open air.

It is an essential point in the cultivation of *Cannas* to have the plants as strong as possible when planted out in May.

The *Canna* is popularly called the Indian Shot plant, from the fancied resemblance of the round, black, hard seed to shot. The term *Canna* signifies a cane or reed.

PLANTS GROWN IN MOSS.

BY ALTHÆA, BOSTON, MASS.

A collection of plants cultivated by means of the Dumesnil fertilizing moss has created a great sensation here, and will in time revolutionize window gardening. C. J. Power, of Framingham, has undertaken to place this new

process before the American public. Great success has been attained with it in Europe. The moss is simple and clean, and appears infallible in its peculiarly invigorating properties, while its possibilities for service to florists, botanists and artists are of incalculable value. In this moss plants are grown absolutely without earth, and will both flower and bear fruit, while their hardiness is augmented. It may be used in doors or out of doors, or during long transportation. The advantages of using it in window gardening appear at once to those who are all winter constantly cleaning after muddy and leaky pots. The moss requires only sprinkling—just enough wetting to compensate for natural evaporation. Mr. Power's exhibit at a recent meeting of the Massachusetts Horticultural Society consisted of ivies and geraniums in pots, which are in a most thrifty condition, and show every evidence of growing and blooming finely. Several of the geraniums carry superb trusses of bloom. A *Hibiscus Cooperii*, with variegated foliage, is one of the handsomest plants I ever saw. It has been in this moss for three months. A Canterbury bell, with a spike of bloom nearly three feet high, is among the collection. White Verbenas, in full flower, Coleas, Lobelia and Heliotrope complete the list. Mr. Power said he had succeeded well with Carnations also. He is making several experiments under the auspices of the Massachusetts Horticultural Society, which, in course of time, will be made known to the public. His statement of what may be done by means of this moss is almost incredible. If proven, we shall be able to snap our fingers at the seasons, and may have ornamental and costly exotics in our living apartments all the year round.

GLAZING GREENHOUSES.

BY M. M. GREEN, LOUISVILLE, KY.

In the July number Mr. Blair, referring to my note in April on glazing, confirms the opinion which I expressed in that note. I think it desirable, after one winter's experience. I found, however, that towards spring spaces between the ends of the glass appeared, some as large as a sixteenth of an inch, or possibly larger. These did not exist when the glass was laid in the fall. I found the same thing to occur in a house in which the glass was slipped into grooves in the sides of the rafters. Does the glass shrink? Who can give the reason and a remedy?

EDITORIAL NOTES.

STEAM HEATING.—The articles in the GARDENER'S MONTHLY are exciting a widespread interest among florists. At a recent meeting of the New York Horticultural Society many leading florists participated in debate on the subject. There seemed to be no longer any doubt about the advantage of steam over all systems at present known, where large ranges of houses are to be heated. The only question now left seems to be whether it will pay to tear out the immense quantity of pipe and boilers now used in hot water ranges. Kretschmar Bros., of Flatbush, from whom our readers have not heard, gave an interesting account of their experiment, summing up the advantages as follows:

We saved coal to some, and attention to a great extent. A steam-heating apparatus, correctly put up, and furnished with a perfect-working, automatic damper-regulator, can be safely left alone all night in zero-weather.

We can regulate the heat so that each house may be kept at a degree desired.

Closing, we will say, if our apparatus was more perfect than it is now, we would not wish to have anything better than steam-heating.

Our apparatus was put up by a concern that never heard of "greenhouse heating by steam," nor never dreamt that it could be done. They were utterly inexperienced in this line, and therefore the apparatus was put up imperfectly.

PLANTS IN FERTILIZED MOSS.—C. J. Power, of Framingham, Mass., made a magnificent display at the Massachusetts Horticultural Society's exhibition in Boston on the 30th of June, of plants grown in the Dumesnil moss. We are not informed in what manner this moss differs from moss prepared as already described in our pages by Mr. Peter Henderson, which is simply moss mixed with any fertilizing substance. But there are large numbers of people in all large towns and cities who do not care to have the trouble of mixing fertilizing substances with moss, or who have not the opportunity of doing so. To all these the ready-prepared moss will be a great boon. It is cleaner and more easily handled, and those who, like Mr. Power, are making efforts to introduce it, by showing practically what can be done with it, deserve the thanks of the community.

Henderson's fertilizing moss, was for mulching only. These plants are grown wholly in the moss.

NEW OR RARE PLANTS.

DAVALLIA FIJIENSIS.—One of the most charmingly elegant of all stove ferns, free in growth,

divided of the *Davallias*. The fronds grow two to three feet in height, and have a deltoid outline, the caudately elongated points of the fronds and of the pinnæ being gracefully deflexed;



DAVALLIA FIJIENSIS.

firm and durable in texture, evergreen in habit, they are compoundly divided on a quadripinnatifid manner, the whole fronds being split up

into lanceolate pinnules and pinnulets, and finally cut into narrow blunt linear or bifid divisions. Being of evergreen habit and remarkably elegant in its whole contour, so that it will take rank amongst the most ornamental of its race, it is not too much praise to say that it is the finest acquisition to its class, introduced for many years. It comes, as its name implies, from the Fiji Islands. This was one of the new plants with which Mr. W. Bull gained the first prize at the International Horticultural Exhibition, held at Ghent in 1878, and at the Great Show of the Royal Horticultural Society, held at Kensington in 1880.

GYNURA AURANTIACA, BROWN.—The "Illustration horticole" for 1881, last part, speaks thus of this beautiful plant: "The *Gynura aurantiaca* is a hardy plant belonging to the Compositæ, and

is of such an ornamental character as to allow of one's saying that it is not surpassed by any other plant of the same class. The stem and leaves are clothed throughout their entire length with a thick covering of hairs, soft to the touch, and of a beautiful deep violet color, which gives an appearance of the richest velvet to the plant. This is more especially the case with the young leaves, and when combined with the brilliant orange of the flowers, the aspect of the plant is truly superb. Without doubt, it will gain great favor as an ornamental plant for the open borders."

As this plant in all probability will become as popular as *Iresine Lindenii* and *Coleus Verschaffeltii*, it will be sent out at a very low price, in order that it may spread as rapidly as possible.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

At the Rochester Nurserymen's Meeting there was much discussion on the best method of labeling the trees in an orchard. There should always be a book kept with the names of the trees in regular order, so that if a label be accidentally lost or become illegible, there will be a certainty of getting it again. But, as Mr. P. Barry well remarked, time is a great deal in this age, and all labelling should be made very plain, so that we can easily see the name the moment we want it. There are few better things than large stout pieces of pine wood, well painted, and the name written on the label while the paint is soft, and this label suspended from a branch within reach by a piece of stout copper wire. The loop of the wire must of course be large, to guard against its cutting into the branch by the growth of the wood. This is the season to examine the fruits, and note how far they may prove to be true to name. In regard to the quality of fruits it is worth while to look to the healthiness of the trees. Many a fruit has been pronounced worthless, when, if the tree had been healthier, another conclusion might have been reached. This is especially true of small fruits. An unhealthy

raspberry, blackberry or strawberry, always gives fruit of poorer flavor than plants in good health. It is not always easy to tell when plants of small fruits are in good health, for they often have something the matter with them before the injury is very plain. The experienced eye detects a change in the color of the foliage, in many cases of plant trouble. If we know the soil to be good, and the plant has for all this a yellowish tint, there is sure to be something the matter with the plant. It is generally useless to try to renovate a sickly stock. Better get new plants, or another kind, and plant where the kind has not been growing before, if we can find such a spot.

In orchard trees this yellow tint may often be noted. Occasionally this will be from poor ground; and a top dressing of some fertilizing substance will give a renewed green to the trees next season, but very often borers may be found in the stems, or fungus at the roots, or some other trouble directly affecting the health of the tree, and for which even manure will be of no account. A good green dark color to the foliage is always a test of healthfulness. This is especially marked in the grape. People often call attention to some variety they are growing, that

it is worthless, when the pale color of the leaves tells plainly that the plant is sick. There is nothing helps a grape so much as a good top-dressing annually, unless it be a nice trellis whereon the grape may twine. It loves wire or twiggy sticks whereon the tendrils may attach themselves. Among some of the absurdities of amateur gardening is the putting up of an expensive grape arbor, and then putting out small vines to run over it. Better let them grow for a year or two over strong bushy stakes, and put the arbor up after the plants have grown. The vines will grow the better for this, and the arbor will have that many more years to last before it rots away.

The fall is an excellent time to plant all kinds of fruit trees, except in the very coldest climates the peach may perhaps be reserved for spring. If the fruit orchard is to go on a hill, or where the trees may dry out easily in summer time, the fall is the best time. The roots get the earliest start in spring against the dry time cometh. Small growing things, in cold climates, should have the earth well drawn up around the plants in order to guard against being drawn out by frost.

The main crop of Spinage should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinage for fall use.

Turnips also may still be sown. In fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching described in former hints.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as, if it grow too vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, the other at the end. The rule is, get them only just so strong that they may live over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of

stone, brick or wood, sunk five or six feet below the surface of the ground, into which leaves, manure, or any waste vegetable matter is filled. When quite full it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of Cauliflowers. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

Tomatoes will still repay care bestowed in keeping them in shape. Those grown on stakes should be tied up, and will continue bearing for some time yet. Where the ground is very dry, waste water from the kitchen will benefit them.

Potatoes, as soon as the tops are well decayed, are best taken up at once, as they appear less liable to rot afterwards, than if left long in the ground.

Egg plants like plenty of moisture, with sun and air. If the ground be dry, give them abundant manure water; they will bear until frost.

COMMUNICATIONS.

NEW EARLY PEACHES.

BY H. M. ENGLE, MARIETTA, PA.

There was a period when everybody acquainted with peach culture knew which was the earliest, but since Hale's Early has been superseded the question of earliest is undecided, and no doubt will continue thus for many years to come. It is generally conceded that the many new varieties two to three weeks earlier than Hale's, are seedlings from the latter.

No doubt seedlings will be grown from the earliest kinds in hope of getting this fruit still earlier, but as there must be a limit between the blooming and ripening periods of all fruits, the question is whether we have not reached said limit with peaches.

We have fruited this season twenty-six varieties claimed to be from one to three weeks earlier than Hale's, a number of which fruited on the same grounds two years ago, and several for the last six to ten years. I have settled down to the firm conclusion that there is not three days difference in time of ripening of the

following varieties, viz.: Amsden, Alexander, Wilder, Musser, Bowers' Early, Baker's Early, Alpha, Gov. Garland, Sherfey's Early, Nectar Early Canada, Waterloo, Downing, Saunders, Cumberland, Honeywell's, Climax, Briggs May, Our No. 4. The eleven first named have leaves with globose glands. Waterloo has reniform glands, and the seven last named are glandless. All the above named varieties are just over, while Early Beatrice, Louisa and Early Rivers are just coming in. We picked the first ripe peaches about 22nd of July, while two years ago the first were ripe about 26th of June. Early Surprise is just coloring and will ripen about with Hale's. Early Rose and Early Lydia quite green. Flater's St. John, said to be the earliest yellow peach, will ripen, I think, with Troth. In testing these varieties we had fixed on several as earliest, but find that comparative earliness varies with same varieties, on the same ground, and with the same trees, in different seasons.

Those varieties having globose or reniform glands are as a rule the stronger growers, while the glandless are almost invariably subject to mildew and consequently weaker growers. There seems to be a general uniformity of the fruit of the same classes named and a slight difference, which I can hardly describe, between that of the glandless and those having glands, *i. e.* including those named that are over at this date.

T. V. Munson, of Texas, whom I consider good authority, claims that those having reniform glands are as much more vigorous than those having globose glands, as the latter are above the glandless, but I could thus far not see the point. From our method of testing I claim to report with the assurance of fairness, viz.: (The following were budded on bearing trees and bore quantities sufficient to compare) Bowers' Early on Amsden, no difference in fruit nor time of ripening; Early Canada on Wilder, no difference; Baker's Early on Alexander, no difference; Gov. Garland on Alexander, no difference; Alpha on Wilder, no difference; Waterloo on Wilder, no difference; Sherfey's on Alexander, no difference; Climax on Wilder, no difference; Nectar on Downing, slight difference; Musser on Wilder, no difference; Cumberland on Wilder, slight difference; No. 4 on Wilder, slight difference; Early Surprise on Alexander, Early Rose on Amsden and Early Lydia on Downing, three varieties above mentioned as not ripe, will be seen had no disadvantage of position.

The many different and even contradictory reports as to time of ripening of most of the above-named varieties, prove that time of ripening as well as size, quality and appearance depend on conditions which are often overlooked or misunderstood by the growers. Even with all our knowledge of peach growing we must admit that they are subject to queer freaks not yet accounted for. If there is any one variety that will for a period of six to eight years prove uniformly three to four days earlier than any other variety, I will guarantee for its introducer a handsome premium. But what is particularly desired, is a freestone peach, as early, as large, good, and handsome as any now grown, and whoever will obtain such a variety will deserve a handsome fortune.

FORCING EARLY CAULIFLOWER.

BY AUGUST D. MYLIUS, DETROIT, MICH.

The best kinds of cauliflower for forcing are Early Erfurt and Early Snowball. I sow in boxes in forcing pit from the 10th to the 20th of January. When plants are large enough they are transplanted to a side bench, setting them two or three inches apart. In March they are planted between lettuce or radish rows, setting them one foot apart in the row, and the rows fifteen inches apart. Or if the hotbed contains nothing when the cauliflowers are planted, radishes, lettuce or Egyptian beets may be sown between the rows. Even carrots and Kohlrabi may be forced with the cauliflower. There could be much greater profits made on vegetables if more attention were given to a succession of crops. It is not always necessary that one crop perfect itself before another be planted in its place. By studying suitable crops and planting between the rows several crops from the same ground may be had in a season.

EDITORIAL NOTES.

PROTECTION TO ORCHARDS.—Mr. Yeomans, of Walworth, N. Y., attributes much of his great success in orcharding to the employment of shelter belts of evergreens and other trees.

GRAPE ROT.—What is the matter with the grape in Kentucky this season? We hear sad accounts of the rot. Only Ives and Norton seem to have escaped.

PROTECTING PEACH TREES IN SEVERE CLIMATES.—A correspondent of *The Western Rural* protects peach trees as we recently recommended Figs to be protected: "I have also good success raising peaches in a similar manner. Last season, after the hard winter of 1881, the mercury going down to thirty-six degrees below zero, I had as fine peaches as I ever saw in the Chicago market, ripe by the first of August. I set out one-year-old trees from the bud, and in the fall before the ground freezes up I dig on one side of the tree, cutting some of the roots, and taking out some of the dirt from under the body of the tree, so that it will bend down to the ground. Then I peg it down, cover the roots well with dirt, and then the whole tree with a good covering of straw, or marsh hay, replacing it in the spring in its proper position, after the danger of frost is over. I have trees treated in this manner twelve feet high that bear a good crop every year. My soil is a sandy loam."

SOME LARGE STRAWBERRIES.—Strawberries, kind not named, raised by Dr. Alpaugh, of High Bridge, New Jersey, were exhibited in Philadelphia, they measuring ten and a-half inches round and weighing over three ounces each.

LE CONTE PEAR.—This seems to be very popular in Florida. It is being extensively planted there, and the older plantings producing profitable crops. It seems also to be holding its own in Georgia. Up to July 6th, one firm at Thomasville had shipped twenty-three bushels to New York.

MCCRACKEN BLACKBERRY.—This was found in a wood at Fulton, Illinois. It is claimed for it that though not a large fruit, it succeeds in places where the larger fruited kinds fail, and that it is an early ripener and of good quality.

CHURCHMAN'S SUPERB RASPBERRY.—This new candidate for popular favor commenced ripening on the grounds of Mr. John Churchman, of Burlington, N. J., on the 30th of June. From accounts we hear of it, we believe it to be a very fine variety.

THE CAROLINE RASPBERRY.—We find this amber-colored variety is not of the *Rubus occidentalis* or "Black Cap" race, but of the same class as the Philadelphia belongs to. Some botanists believe these to form a distinct species, and Dr. Peck, of New York, once named it *Rubus neglectus*. It is by far the best of these light-colored kinds.

THE HANSELL RASPBERRY.—Mr. Churchman

states the published reports give his name as among those present at the examination of the Hansell Raspberry, and, by implication endorsing the resolutions that that variety was "best of all." Mr. Churchman does not believe that it is anyway superior to the Superb.

THE HANSELL RASPBERRY.—This is represented as an accidental seedling, found on the farm of Hansell Brothers, near Beverly, N. J. It was brought into notice by Mr. J. T. Lovett. This season the first berries were gathered on the 4th of June; the picking for market was made on the 11th of June. A company of several dozen of the most eminent fruit growers of New Jersey met on the farm and examined the fruit on the 27th of June, and unanimously agreed that in addition to many good points as a market fruit, it was the earliest red raspberry known.

FAY'S CURRANT.—Fruit which we saw on a young plant transplanted this spring, shows that it is a much finer fruit than the Red Dutch. From the test made it could not be decided whether it was very different from the Cherry and the Versailles which it much resembled. It is at least safe to say it is a very good variety.

OUT-DOOR MUSHROOM BEDS.—A correspondent of the *Journal of Horticulture* gives the experience below in regard to out-door mushroom beds. It should be remembered that these beds are in ridges and kept shaded by straw, and that they succeed only when the temperature can be maintained steadily at about 60°; above or below this success is doubtful:

"As showing that mushrooms can be grown outdoors with some approach to regularity, and that a good crop is not a matter of chance, I will adduce the latest records of the yield from 150 yards of beds—namely, during last month. The following are the dates of gathering and the quantities sold:—April 1st, 122 lbs.; 4th, 73 lbs.; 6th, 114 lbs.; 8th, 108 lbs.; 11th, 160 lbs.; 13th, 104 lbs.; 15th, 159 lbs.; 18th, 207 lbs.; 20th, 180 lbs.; 22d, 180 lbs.; 25th, 150 lbs.; 27th, 222 lbs.; 29th, 221 lbs.; or a total of 2,000 lbs. This is a perfectly fair example of ordinary practice. I may also add that one bed 25 yards long yielded in the same month 529 lbs. during three weeks—namely, 159 lbs. one week, 180 lbs. the next, and 170 lbs. last week.

SMALL FRUITS IN JAPAN.—Mr. Maries continues his highly interesting "Travels in Japan," to the *Garden*. Of wild berries he says: "The following day I passed through the same kind of forest I had seen before at Sapporo, and I found the black currant growing wild. Raspberries were

also very plentiful, with a kind of blackberry, all very acceptable to us. We gathered large quantities and had them boiled down with sugar, and they made excellent preserves. The heat has been rather oppressive of late; to-day the thermometer stood at 90° in the shade at an elevation of 1,000 feet. The nights were always cool, so that we could sleep comfortably."

CULTURE OF RASPBERRIES.—The *Farmer's Home Journal* says: "Col. Young is an observing and practical horticulturist of no ordinary acquirements. Doubtless the large crops he grows are in a great measure due to his judicious management. His practice with raspberries, for instance, is to cut the growing canes when they reach about four feet high, which is generally in July. These canes will then throw out side branches or laterals, which, by the following November, will be three or four feet long. These side shoots are then cut back to six or eight inches long in the spring, and from them grow the bearing limbs, filled with berries. The old canes are allowed to remain after bearing and die out of themselves. In the following spring they are brittle, and easily broken off and taken out of the way."

FLAT CHINESE PEACH.—A California correspondent speaks highly of the success of this peach in California. He says its earliness as well as its delicious flavor there, bring it general praise.

USING PYRETHRUM POWDER.—Prof. Cook, of the Michigan Agricultural College, found that one pound of the powder was effective in two hundred gallons of water when applied for killing cabbage worm. The powder must touch the insect to be effective, and loses its value if left long exposed. Its power is due to a volatile oil. It costs one dollar per pound, so must not be wasted. We should be glad to hear from those who believe in salt for the cabbage worm. If it can be applied without injury to the cabbage, it ought to be all that is desirable.

THE ENGLISH SPARROW IN CANADA.—Mr. Dougall, of Windsor in Canada, was outraged at the attacks of some writers on the English sparrow. They had thronged in his orchard, but never touched a bud or fruit. It was a cold, snowy day and horse waste was scarce. He was on the way to post a letter, when, could it be possible, the rogues were at his plum and cherry buds. It could only be that they were after insects.

He looked again and again. The end was, the friendly letter was not posted. Mr. Dougall will have few fruits from his specimen Windsor cherry this year.

NECTARINE.—Few fruits are more delicious, when properly ripened, than the nectarine; but except from glasshouse culture, they are rarely seen. The *Curculio* is just as fond of them as of the plum. If the trees were shaken as plum trees are, one could just as well have nectarines as plums. It is now settled beyond all question, that while persistent shaking is a success, nothing else will secure plums.

APPLE BEAUTY OF HANTS.—By the colored plate in the June *Florist and Pomologist*, this English apple must be one of the most beautiful. It is oblate-conical, four and a half inches wide, and three and a half deep, brownish-red splashed with crimson on the sunny side, and russetty-yellow on the other. It has been known for some time in England, and is a seedling from the Blenheim orange. How it would behave if introduced into America, would be a question to consider; but it would be a popular fruit should it behave well.

BLACK KNOT ON THE PACIFIC COAST.—Prof. Hilgard is reported as saying that "the Black Knot is almost universal on the cultivated trees throughout Oregon and Washington Territory," the cherry being understood as the trees referred to. It is common on the choke cherry in California, (*Cerasus demissa*, probably,) but has not been reported as on cultivated trees.

THE CURL IN THE PEACH.—A belief prevails that some varieties of peach never have the curl; but we believe any variety may suffer.

SCRAPS AND QUERIES.

GLENDALE STRAWBERRY.—"F. B.," Pittsford, N. Y., says: "We are growing the Glendale strawberry here and find it to be of such merit as to be recommended for both market and family use. Being of such a brilliant color, large size, good form, and very productive; much better than the Green Prolific, an old variety. If I mistake not the Glendale originated at Akron, Ohio, in Glendale cemetery. Green Prolific is pistillate. Glendale is not."

A NEW PEACH WANTED.—Raphael Sherfy, of Gettysburg, Pa., says "that the peach growers are

in need of a large white cling peach of the same quality and texture and as distinctive white in flesh as the Heath cling, that will ripen at a different time in the season, and that he will be pleased to correspond with any person having knowledge of such a variety."

DEFECTIVE RASPBERRIES.—"Maryland" asks: "Are there varieties of the raspberry that are exclusively staminate or pistillate? If not, why should the bushes, from one of which I enclose a twig, always fail to perfect fruit?"

[The pistils are very often defective in the raspberry. Perhaps the stamens sometimes are, but if so this has not been noticed. We are glad that our correspondent has called attention to this, as it is often overlooked in the characteristics of a good raspberry. One that has always its flowers perfect is to be preferred to one with a tendency to unisexuality.—Ed. G. M.]

CAMPBELL'S TRIUMPH GRAPE.—"T. V. M.," Denison, Texas, writes: "I mail you to-day a cluster of Triumph (Campbell's) grape as it grows here with ordinary vineyard culture. The vine is as vigorous and productive as Concord. By the side of Irving, Lady Washington, Duchesse and other choice kinds fruiting in my vineyard this year, it is far ahead in every desirable point, except in toughness of skin, as compared with Duchesse, which will render the latter a better shipper. Though I have sent the Triumph in one-third bushel boxes, wrapped in paper, over 1 200 miles by rail, arriving in fine condition. While so much is being said of Pocklington and others, are we not possessed of a much greater treasure (at least for the region where Catawba will ripen, as Triumph ripens with it.) in this grape which is making such an astonishing success here for six or seven years in succession. As I have not yet fruited Pocklington here (expect to next season), would be pleased to know your opinion as to comparative merits of the fruit of the two, you having seen and tested both. Please answer, if agreeable, through the *GARDENER'S MONTHLY*. Now as this grape has been before the public for a number of years, reports from various sections, where it is being fruited, would be generally interesting."

[So many new fruits come to an editor's table, and most of them so very good, that it seems too bad not to give them high praise. But it is not safe to forget that there are already a large number of first-class varieties before the public, and the proper question before an editor should be,

not whether the variety submitted is first-class or not, but whether it is judicious to add another to the list already thought too long. Even with this rod before the introducer of a new grape, he will surely be justified in presenting this one. It belongs to the class known as white grapes. The fruit is not amber, but of a clear green. The berries are larger than Concord's are usually here, and the bunch weighed thirteen ounces and measured seven inches from where the shoulder branched to the stem of the bunch. The berries were very juicy and the juice peculiarly refreshing.

So far as can be judged from a single bunch it must be concluded at least that there is room for it in the lists.

It was packed in cork dust and reached Germantown on the 3d of August, five days coming 1,200 miles, and was as fresh as when taken from the vine.—Ed. G. M.]

PROLIFIC RASPBERRIES.—A correspondent suggests that when a raspberry is spoken of as "an abundant bearer," it simply means that "there are more berries ripen together than usual." He says that "there are never more than ten flowers on a raspberry branch, and sometimes they ripen nearly altogether, and are over in a few days. In other varieties they ripen in succession over a period of about ten days, and this is all there is in it." We cannot say now that the raspberry season is over, whether this is the case or not; but even if there are but ten flowers, surely some are often abortive.

RUSSIAN MULBERRY, ET CETERA.—S. Lincoln, Nebraska, sends us the following extract from some Western publication, and asks if it is a "humbug?" "The Russian mulberry, Russian olive, Russian thornless acacia, were brought to this country from the steppes of Russia, latitude 49°, by the Mennonites. The mulberry and olive were the favorite timber and fuel-producing trees of that country, and after eight years' trial prove equally as valuable upon the prairies of the West. The mulberry, as near as we can learn, is a cross between the *Morus nigra*, or black mulberry of Persia, and the *Morus Tartaraca*, a native Russian variety. The tree is a very rapid grower and grows to be very large, often reaching the height of fifty feet, and from three to five feet in diameter, and is perfectly hardy. The Russian olive is a thorny tree which attains the height of forty feet. The leaves are a bright silver color and are formed like the willow.

Flowers, small yellow, in dense racemes, very fragrant. The fruit is a violet color, and is produced in large quantities. It is about the size of cherries. The Russian thornless acacia is a beautiful dwarf tree or shrub. The leaves, when they first put forth, are a rich silver color. Bark, green. Flowers in droops, a bright golden color. It stands shearing and makes a beautiful ornamental hedge."

It is hard to say whether this statement is to be classed among humbugs or not. It depends on whether we are to justify the wholesale coining of English names by any one and on any occasion. We will simply say that the "Russian

mulberry" is one of the numerous and well-known varieties of the common white mulberry, *Morus alba*; the "Russian olive" is the common oleaster of Eastern gardens, *Elæagnus angustifolia*; and the "Russian thornless acacia," the still more common Siberian pea, *Caragana arborescens*. If you already have these things under the old names, and buy them again under the new ones, possibly you may feel "humbugged:" but if you have not, and should get them, you will find them very good things to have. The statement that they will endure the severest weather in the North-west, we believe to be strictly correct.

FORESTRY.

EDITORIAL NOTES.

EUCALYPTUS IN CALIFORNIA.—At Los Angeles are trees of the Blue Gum of Australia, sixty feet high in seven years from seed. We should like to know more about the value of this wood as timber in California, than we have as yet seen reported.

FORESTS OF MAINE.—We have before us No. 15 of the Census Forestry Bulletin with a map of the State of Maine, showing the distribution of the pine and spruce forests, by Prof. C. S. Sargent. Maine seems to be acting more judiciously than some other timber districts. Pine has been cut in every township, and the largest spruce has been removed except from inaccessible regions; but the second growth is carefully protected, which allows the forest to be again profitably worked every fifteen to twenty-five years.

FOREST FIRES.—The following is one of the many samples of newspaper paragraphs running through our daily papers at this time, as they do about this season every year:

"The forest fires are raging fearfully, extending from Glen Dam to within a mile of Tawas City. At the Miners' farm, a few miles from

Tawas City, the farm products are burning, and C. W. Carrie's place is on fire. The farmers are driving their cattle to the shore and sending the children to town. On the East Tawas road many of the farmers' fences and much hay and grain are aflame, and three dwellings burned. The loss is very great. Travel is cut off in many directions. Strenuous efforts are being made to save Glen Dam."

And yet we must not have laws compelling the clearing out of the gun-powder-like dead wood with which the underbrush of so many forests are burdened, because it may interfere with the second growth of the forest when the original is cut down.

Of what use is a second growth if it is to be burned up every once in a while?

LUMBER RESOURCES OF THE UNITED STATES.—A special bulletin, prepared by Prof. C. S. Sargent, has been issued by the Census Bureau upon the lumber interests of the United States. According to this statement there were in active operation at the time of taking the census 25,708 establishments, with an invested capital of \$181,188,122. The total number of hands employed was 147,956, and the annual disbursement for wages \$31,845,974. The total value of all products from this source was \$233,317,729. Although

it has been supposed that Pennsylvania's lumber interests had declined very materially within the last decade, this State stands second in the list in regard to value of manufactured lumber, Michigan alone exceeding her. Wisconsin stands third, New York fourth, Indiana fifth, Ohio sixth, and Maine seventh. At the present rate of manufacture the next census will witness a very marked falling off in the lumber production, for the very good reason that the forests will be largely exhausted in many States unless, as there is every reason to hope from the attention now given to the subject of forestry, new forests shall be extensively planted to replace the old ones.

SCRAPS AND QUERIES.

RAILROADS AND FOREST FIRES.—“M.” says: “Would it not be better for the GARDENER'S MONTHLY to wage a war against those outrageous monopolies, the railroads, than to argue for the clearing out of the brush wood left by log cutters, as a remedy for forest fires? We do know that most of these fires are started by these public vampires. Why not by law make them have spark-arrestors on their smokestacks? Is this not as easy as to make wood-choppers clear up the trimmings after them? Say?”

[In the discussion of these topics we do not care to be in opposition or in defence of “vampires,” or of any other body of men, but to present whatever facts may be obtained. It makes no difference at the rate of the GARDENER'S MONTHLY on which side these facts bear. Now as to spark-arrestors, we fancy no person or persons would be more willing to adopt the “spark-arrestor” than these same “vampires,” provided they could be so arranged as not to interfere with the draft of the furnace; but we fancy even “M.” would growl if he were compelled to travel across the continent at the rate of only fifteen or twenty miles an hour, because the law made the “spark-arrestor” imperative.

Again, “M.” should know that by recent legal decisions a suit will not hold against a railroad company for damages from fire where it can prove “contributory negligence.” Piles of dead branches left under or near a forest, and which catch from a locomotive spark, are not the “necessaries” of a forestry business, and would probably be deemed to be “contributory” to the fire.

The common sense of the question seems to be that railroads should be made to use common prudence, and so should everybody else. It might do to compel railroads to clear up on the land they own. In clearing out underbrush it would not probably be necessary to clear out where there was but little danger. If say a quarter of a mile were cleared out around a 50 000 acre lot, the interior would probably be safe; or, if a fire started inside of it, it would then be confined to that tract.

It may perhaps be unjustifiable to say what one shall or shall not do to guard against fire on his own wood-lot, but he ought to be made to place guards around the fires that it shall not reach his neighbors.—Ed. G. M.]

RAINFALL AND FORESTS.—“Meteorologist,” Cincinnati, says: “You are doing good service by showing the absurdity mixed with the common sense of meteorology in connection with forestry. That Utah illustration of the increase of rain through Mormon planting when we know that the miners destroy a thousand for every one a Mormon plants, is an old piece of nonsense which we thought shown up long ago. But on the other hand, do not those who contend that forests have no influence on the weather erect a similar absurdity? It should be understood that no one claims a forest to be the sole cause of meteorological conditions. There is no one cause of the weather. Electricity may be a great cause. The cause of the weather I take to be made up of a vast variety of minor causes, of which the forests are only one.”

[And yet not so many causes in one. There is reason to believe that electricity is only a mode of motion.

The “cause” of the weather is not complicated. It is simply heat and cold, as shown in a recent paper. The condensation of moisture which results in rain, is simply the meeting of two currents of different temperatures. A forest may affect this to some degree, as our correspondent says. An atmospheric current sweeping over a thousand miles of hot sand, would certainly be warmer than one sweeping over a thousand miles of forest, but a few acres of forest would have about the same influence, as the raising of one's finger would against the atmospheric current which makes the moisture trickle down an ice pitcher in summer time.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CICADA SEPTEDECIM.

BY C. V. RILEY, WASHINGTON, D. C.

Paragraphing is not conducive to accurate and careful statement, and I often notice editorial errors in the GARDENER'S MONTHLY—fewer, perhaps, than in other magazines of similar character. In the short paragraph on Cicada, on page 247 of the August number, there are two technical errors and an unjust reflection. The seventeen-year Cicada was named by Linnaeus *Cicada septendecim*—not *septemdecim*, and the thirteen-year race of it *Cicada tredecim*—not *tridecim*—by myself. I did not describe it as a new species, as you may see by reference to the note (enclosed) on pp. 58-9 of Bulletin 6 U. S. E. C., the General Index and Supplement to the nine Missouri Entomological Reports. You may deem the note of sufficient interest to your readers to warrant reproduction.

The popular term "Seventeen-year Locusts" should be discountenanced, for while I agree with much that you have said lately in your magazine, anent popular names, this forms an exception to the general rule, as I think I have made sufficiently clear in my 7th Mo. Rep. (pp. 187-8.)

"*Cicada septemdecim* (Rep. I, p. 18)—This orthography, used in the Reports, is grammatically correct, but I find that Linnaeus himself wrote *septendecim* (*Systema Naturæ*, Tom I, Pars II, 12th Ed. Stockholm, 1767). Fitch used both forms of spelling, but Westwood, Harris and most other authors follow Linnaeus, and *septendecim* is, therefore, preferable. As to whether the seventeen and thirteen-year broods should be considered specifically distinct, I am still of the opinion expressed in the First Report that the insects should not be looked upon as distinct species, but that *tredecim* Riley should rather be considered a race, or as Walsh (in a letter to Charles Darwin, which has kindly been shown me by Mr. G. H. Darwin) puts it, an incipient species to which, for convenience, it is desirable to give a distinctive name. That it may be

looked upon as a good species by excellent authority, will be seen by Walsh's discussion of the subject (*American Entomologist* II, p. 335) which I here quote:

"What candid entomologist, who has worked much upon any particular order, will not allow that there are certain genera where it is often or almost or quite impossible to distinguish species by the mere comparison of cabinet specimens of the imago? Löw and Osten Sacken have said this of the genus *Cecidomyia* in Diptera; Osten Sacken of two other Dipterous genera, *Sciara* and *Ceratopogon*; Norton of the genus *Nematus* in Hymenoptera; and Dr. LeConte lately assured me that, although when he was a young man, he thought himself able to discriminate, in the closet, between the different species of *Brachinus* in Coleoptera, he now considered it quite impracticable to do so with any degree of certainty. And yet who doubts the fact of the existence, in North America, of very numerous distinct species of *Cecidomyia*, of *Sciara*, of *Ceratopogon*, of *Nematus*, and of *Brachinus*.

"Upon the same principle I strongly incline to believe that the seventeen-year form of the Periodical Cicada (*C. septendecim*, Linn.) is a distinct species from the thirteen-year form (*C. tredecim*, Riley) although it has been impossible for me, on the closest examination of very numerous specimens, to detect any specific difference between these two forms.* It is very true that the thirteen-year form is confined to the more Southerly regions of the United States, while the seventeen-year form is generally, but not universally, peculiar to the Northern States; whence it has been, with some show of plausibility, inferred that the thirteen-year form is nothing but the seventeen-year form accelerated in its metamorphosis by the influence of a hot Southern climate. But as these two forms interlock and overlap each other in various localities, and as it frequently happens that particular broods of the two forms come out in the same year, we should certainly expect that, if the two forms belonged to the same species, they would occasionally intercross, whence would arise an intermediate variety having a periodic time of fourteen, fifteen or sixteen years. As this does not appear to have taken place, but on the contrary there is a pretty sharp dividing line between the habits of the two forms, without any intermediate grades of any consequence, I infer

*For an excellent statement of the facts bearing upon this curious question, see a paper by Mr. Riley, the State Entomologist of Missouri, in No. 4 of the *American Entomologist*, and a still more complete one in his First Annual Report.

that the internal organization of the two forms must be distinct, although externally, when placed side by side, they are exactly alike. Otherwise, what possible reason could there be for one and the same species to lie underground in the larva state for nearly seventeen years in one county, and in the next adjoining county to lie underground in the larva state for scarcely thirteen years? I presume that even the most bigoted believer in the old theory of species would allow that, if it can once be proved to his satisfaction that two apparently identical forms are always structurally distinct, whether in their external or in their internal organization, they must necessarily be distinct species.

"On the other hand, I firmly believe that many perfectly distinct forms, which at one time passed current, or which even now pass current, as true species, are in reality mere dimorphous forms of one and the same species. We find a good example of this in the dimorphous female *Cynips*, q. *aciculata*, O. S., which has already been treated of at great length. We find another good example of the same thing in *Cicada Cassinii* male and female, Fisher, which is sufficiently distinct from the Periodical *Cicada* to have been classified as a distinct species, and yet never occurs except in the same year and in the same locality as this last, and what is more extraordinary still, is found not only along with the seventeen-year form (*C. septemdecim*), but also along with the thirteen-year form (*C. tredecim*).

"Now, if *Cassinii* were a distinct species, and not, as I believe it to be, a mere dimorphous form of *C. septemdecim* and *C. tredecim*, the chances are more than a million millions to one against its always coinciding with the two other forms, not only as to the particular locality, but as to the particular year of its appearance."

"I do not know that any one has heretofore attempted to set at rest, by actual proof, the very general skepticism as to this insect remaining so long underground, on the part of those persons who have given little attention to the subject. I have been able to trace the development from year to year of my *tredecim* brood XVIII in the vicinity of Saint Louis by digging up the larvæ each year from 1868 to 1876, and noting the annual growth. They could always be found within from two to five feet of the surface upon the roots of trees, and had by the eighth year attained the first pupa stage, and I have no doubt but that, at this writing, the true pupæ are nearing the surface of the ground to appear in myriads in the perfect state in May and June of this year.

"The fungus affecting this *Cicada* has since been described by Mr. C. H. Peck as *Massospora cicadina* (81st Rep. N. Y. State Mus. Nat. Hist., pp. 44, 1879)."

TAPPING MAPLE TREES IN SPRING, Etc.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA CANADA.

Does the tapping of maple trees in spring do them any injury? The general opinion will be, yes. It has always been mine. But I wish to state a somewhat singular instance to which my attention has been called. It is that of two groves of maples, planted at the same time alongside of each other, and in every way holding the same position and treatment; one has been tapped for seven successive years, yet the trees show as if they were that number of years larger in size with an equal appearance of health; the other grove has never been tapped. Another is a grape vine neglected to be pruned in the fall, but was done in the spring. That grape, although it bled profusely, yielded larger and better grapes than it ever did before, and better than any growing alongside of it. This would indicate that tapping maples, and spring pruning of the grape, did not in any way injure them, but rather the reverse. The insertion of this in your paper might throw some light on this subject, and bring out some new ideas on spring pruning.

[At a recent meeting of the Pennsylvania State Board of Agriculture, held at Allentown, the subject of maple sugar making was discussed by several intelligent members of the Board, and the general sentiment seemed to be that there was no serious injury to the trees from the tapping for some years, though some thought there was an injury in time.—Ed. G. M.]

SEXUAL CHARACTERS IN DIOECIOUS TREES.

BY JACOB B. GARBER, COLUMBIA, PA.

I am somewhat surprised seeing your remarks in the August number of the *MONTHLY* in regard to the Paper Mulberry—"that plants can at times change their sexual character."

This tree is as regularly male and female on different trees as the fruit-bearing mulberry. There was, and may be yet, a large tree standing on the lot of Wm. Kirkpatrick, afterwards owned by the late Jacob Stauffer, in Lancaster City, more than thirty years ago. About thirty years ago, a man from New Orleans, traveling in Texas, came across a tree new to him. He supposed it to be a cross of the mulberry and the fig, and called it Fig Mulberry. He sent me both seeds and cuttings, and I raised a number

of plants, both from the seeds and the cuttings. Most of them I threw away, as I did not care to grow more than a few. One tree I still have, bearing its curious balls in June, and also a tree on my son's farm, near Maytown, this county, also bearing these seed balls in profusion. The balls are about the size of a small hulled walnut but stuck all over with little red stamens about half an inch long. When in this condition the tree looks curious and beautiful. I kept none of the male variety, as at that time the male trees were a regular street tree in towns along the sidewalks, but are now almost extinct. I would not know where to find a single specimen at the present time.

[The many friends of Mr. Garber will be very glad to read something from his pen again. Few men have given more freely of their time and knowledge to the general information fund than Mr. Garber has in his day, and we are glad to take the present occasion to draw attention to this fact.]

In regard to the Paper Mulberry, we must not lose sight of the fact that it is not a native of Texas, but of China and Japan. It is of great interest to know that fruiting specimens were thirty years ago—but the question still remains, was this tree introduced from Japan or Chinese seed, or is it a development from the male tree already under culture? The only reason for suggesting the latter possibility was from analogy. Mr. Isaac C. Martindale, of Camden, has seen an *Ailantus* of one sex produce flowers of another sex. It is rather common to find Silver Maples which for years produce female flowers only, have branches wholly bearing male ones. Still, as Mr. Garber suggests, this is not the proof that the Paper Mulberry has done the same. We should rather agree with him that the actual evidence that it has changed would be more desirable, and if any one can find the two kinds of flowers on the same tree, we should be glad to see the specimens.—Ed. G. M.]

NOTES FROM ARIZONA.

BY MR. J. C. LEMMON, FORT HUACHUCA, ARIZONA.

Your invaluable journal follows us down here from our home in Oakland and tempts us to devote an hour from our busy, tired life to writing an item for your columns.

We find here in these very particularized mountains two species of wild potatoes, each bearing tubers as large as a boy's marble. The

plants grow in lately disturbed soil, generally on the overflow of a mountain stream, and they attain a height of about a foot. One species, called scientifically *Solanum Jamesii*, has whitish flowers, narrow leaves, and produces whitish tubers; the other, *Solanum Thurberi*, has bluish flowers, broader leaves, and dark blue tubers—this species, in fact, being very near to our cultivated potatoes. Now we read that the original *Solanum tuberosum* from Peru was a hard little tuber, and that all we know of its many varieties of form, color, quality, hardiness, &c., comes from cultivation.

Also, we know that in some varieties the process of changing the nature of the tuber has been carried too far; that weakness of constitution is the result; that disease sets in, or the insect world overpowers the plant, &c.

Hence, would it not be well to find out other native, and consequently strong species, and bring them also into cultivation? Has any attempt ever been made to cultivate these native species? Will any of your readers give them a trial—if the tubers can be had?

The plants are just in bloom now and forming tubers, two to five to each plant on rather long subterranean stems or stolons. We remain here botanizing the Huachuca range of mountains until the first of November, so we can gather tubers, if desired, and forward to applicants. In regard to our success in collecting here, we can report some excellent finds already, and the belated rainy season has just set in, after which the whole country will put on new garments, and then another harvest is in prospect. It is very satisfactory to scour these ravines or steep, and every day adds to our bales of plants certain species not seen since the boundary commissioners in '46 carefully explored these mountains and added so many new species to the then known flora of North America.

Occasionally we spy out a new one and then there is great rejoicing in the camp. The latter, by the way, is at present a deserted cabin in a lonely cañon many miles from the fort; but we seem to be in no danger of being cut off and annoyed by the fear of an attack by Apaches, as was our case last year in the Chiricahua mountains.

This botanizing in the land of the Apaches and cowboys is very risky business to be sure, but then its results are most satisfactory. Some discoveries we were enabled to make last season concerning four large timber trees of this coun-

try that were mostly unknown, certainly have a utilitarian aspect for this practical age. Then in the realm of pure scientific research it is no small thing to add a dozen distinct species of plants, however small, to our flora, especially when some of them are ferns—that family so much admired.

When we return home next autumn we will send a list of our new things to the MONTHLY. and some specimens, too, if they are desired. Meantime, possibly you may receive other items from this station.

[Mr. and Mrs. Lemmon's friends will be glad to have this word from them in the wilds where they are endeavoring, at the risk of their lives, to add to the sum of human comfort and happiness. We seldom know the value of anything till we find it. The most insignificant and weedy-looking plant may come to be of inestimable value. The first who saw the potato could never have dreamed of the uses we put it to. Thou sands may yet bless the lonely discoverers of even "mere species" in the Huachuca mountains.

Of the tuberous potatoes we may say that some years ago *Solanum Fendleri* was introduced to culture by Dr. C. C. Parry. The writer of this grew it for several years before, by some unknown accident, it disappeared. It seemed that there was an improved size apparent in some of the tubers, and suggested the probability that by judicious selection larger varieties could be obtained.—Ed. G. M.]

EDITORIAL NOTES.

POVERTY AND PRODUCTIVENESS.—A correspondent of the *Naturalist* quotes Thome as saying, "As poverty of the soil leads to abortion so an unusual increase in the development of the axial or foliar organs is the result of too powerful nutrition." The connection between the two propositions is not clear. Poverty of the soil, as poverty among human beings, often leads to productiveness as well as to sterility.

A NEW GUESS AT DRIFT DEPOSITS.—A newspaper says that Mr. Ignatius Donnelly, of Minnesota, is about to publish a work showing that the drift formations are not the result of glacial action, but have been deposited on the earth when it was going through a comet's tail! We suppose books like these will have a wide sale, and probably not one of the thousands who read

will reflect that the tail is transparent and that the head of the comet is always in a direct line with the tail to the sun.

THE SUGAR MAPLE BORER.—We noticed a number of fine trees of the Sugar Maple totally destroyed, and others dying in Rochester from the attacks of the *Ægeria acerina*, a near relative of the peach borer. It was the first instance under our own observation of such severe destruction by this insect.

THEORY AND PRACTICE.—The word theory is much abused. Properly speaking, when we know that there is an undoubted fact, and we want to understand how the fact came to be, we construct a possible explanation of the fact, and this is the theory of the thing.

But it is common for people who only guess that something may be, to call the guess a theory. It is well to understand that a theory is a system founded on facts; when a system is founded on mere guess work, it is simply an hypothesis. For instance, a boy thinks he would like to go out on a sail on a pond, and takes his mother's washtub. He sees that the handles might make good thole pins for the oar, and believes there is nothing to prevent his having a royal sail. This is not a theory; it is an hypothesis. He pushes out from the shore in the washtub, but is immediately pitched out into the water. He thinks there must be a "water-witch" somewhere about and tries it again, and perhaps again, but only to be bounced out every time. After finding out that sailing on a lake in a washing tub cannot be done, he reasons on his experience and finds that even in a boat there must be a centre of gravity, and he sees the necessity for a keel to the washtub before he extemporizes a washtub as a boat again. The original picture in his mind is the hypothesis; the latter is the theory.

We commend this illustration to those who sometimes tell their readers that no matter what other magazines may do, their pages at least shall be "free from theories," and that they will give only "such facts to the reader as may be sustained by the weight of evidence."

SCRAPS AND QUERIES.

CANDLE WAX TREE.—"S." writes: "On page 23 of the 'Account of the Meeting of the Descendants of Col. Thomas White, of Maryland

(the father of Bishop White), held at Sophia's Dairy, on the Bush River, Md., June 7th, 1877,' Mr. William White Wiltbank, in speaking of the early settlers of Maryland, says:"

"His artificial light was yielded by candles made of a hard, brittle wax, of a curious green color, that was gotten from the berry of the myrtle growing at the mouth of rivers, and found free from grease, and very pleasant to the smell after a careful cooking. These tapers were sometimes extinguished, that the sweetly-perfumed smoke might fill the room."

Can you tell me the plant that was used, or rather the plant that bore the berry that was used in making wax for candles, and that was so fragrant?

[The wax referred to was prepared from the Bay-berry, or Wax-berry Myrtle, *Myrica cerifera*. It is the wax to which recent reference was made in a note on the colored candles used for Christmas trees. As far as we know these wax candles are still made from this species of vegetable wax.—Ed. G. M.]

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

COMMUNICATIONS.

SKETCH OF THE LIFE OF THE LATE ALAN W. CORSON.

BY DR. HIRAM CORSON.

Alan W. Corson was the eldest son of Joseph Corson and Hannah (Dickinson) Corson, and was born in Whitemarsh Township, half a mile from Friends' Meeting at Plymouth, and only one mile from his residence during the last seventy years. When Louis XIV. was persecuting the Huguenots and driving them from France, a few of these Protestants, under the leadership of Henri de la Jourette, fled in two small vessels bound for South Carolina. One of the vessels, says Weiss, in his "History of the French Protestant Refugees," was either cast away upon the shores of Staten Island, or made a harbor there in distress. One of the people thus landed was Cornelius Corson, the oldest ancestor of the present family in this country. There were also others of names well known in Montgomery and Bucks Counties—the Larse-leres, Kruzens, DuBois', Lefferts and others—some of the name are still living in Staten Island. In a chapter of "Local History" published in Staten Island only a few years ago, and headed "The Corson Family," it is stated that "this is one of the oldest and, at one time, amongst the most influential families on the island."

The above Cornelius Corson received a patent for one hundred and eighty acres of land in the island December 30th, 1680, in which it states

that "he shall pay yearly, and every year, for his Royal Highness' use, as a quit rent, two bushels of good winter wheat unto such officers as shall be empowered to receive the same at New York." In this patent the name is spelled Corson, while in some other papers it was spelled Coursen, as it was in France. When the written name came to be read by English-speaking people, it would naturally be pronounced and spelled without the letter u. From Staten Island some of the family went, after the death of the first settler, to Hunterdon Co., N. J., to lands left them by him, and in 1726 a son, Benjamin Corson, of Staten Island, bought two hundred and fifty acres of land in Northampton Township, Bucks County, near to the present Addisville, and settled there; it was continued as the residence of the family till about fifty years ago. This Benjamin, the great great-grandfather of Alan W., brought with him a son seven years of age, who, after a time, married Maria Sedam, and their son Benjamin Corson married Sarah Dungan, a descendant of the Rev. S. Thomas Dungan, a Baptist minister, who came to Providence, Rhode Island, to escape the persecutions which were being meted out to the Baptists in England, but who, finding much intolerance even in the home of Roger Williams, sought freedom in the land of Penn. He came in 1684 and established a meeting, the first of the kind in Pennsylvania, at Cold Spring, three miles above Bristol, in Bucks County, where he ministered for four years, dying in 1688, and being buried at that place. Joseph Corson, the father

of Alan, was the son of the above-named Benjamin and Sarah (Dungan) Corson, and was born in Bucks County. We have thus traced his lineage from the Huguenots of France and the Baptists of England, who for conscience' sake had left homes and kindred.

The Dickinsons were members of the Established Church until near the time of Wm. Penn, when some of them embraced the faith of Friends. As early as 1659 three brothers came to Ann-Arundel County, Maryland, with Colonel Stone, who brought a large number of Episcopalian. In 1680, Wm. Dickinson, then a member of Friends came to Plymouth and settled on two hundred acres of land, now the estates of Morton and Joseph Albertson, adjoining Plymouth Friends' Meeting. This Wm. Dickinson was the great-grandfather of Hannah Dickinson, who married Joseph Corson, the father of Alan W. She was married from the old Plymouth homestead; but as her husband was not a member of the Society of Friends, she was expelled in accordance with the then custom. Her husband and herself always afterwards attended the meeting and reared their children in accordance with their habits and principles. The Dickinson family has an unbroken record from the fifteenth century, time of Henry VII.

A. W. Corson's own account of his life written in 1871:

"Was born 21st February, 1788, and remained in my father's family until the time of my marriage with Mary Eglent, and till June, 1812, except that I was with Samuel Livezey a few months as store-boy. I went to school a few months in the summer that I was six years old, and in the two succeeding summers, and a few months in the winters of the three succeeding years ending in the spring of 1800. Worked on the farm or in the store, as wanted, till about 1812. Married in 1811; rented the store of father in June and remained there till March, 1814, when I bought a house and forty-five acres of land in Whitmarsh, along the Plymouth line; farmed and kept store then till 1823. I commenced surveying, too, in 1816, and continued it, when wanted, nearly forty years; and also taught school in Plymouth Meeting sometimes, and a few winters—five or six—at home. Was much engaged in settling estates until 1844; continued the farm all this time and till 1848, when it was 'put out on shares,' I still residing in the house. I had been at times raising fruit and ornamental trees and shrubs before I quit

farming; but after that time gave more attention to it, doing little else to the present time, 1871. Conveyancing was also resorted to while I followed surveying."

The above is his own account of his business life until 1871. He was engaged in botany as early as the time when his daughter Hannah (now Mrs. James Ritchie) was at West Town school, 1828. There is an incident connected with his visit to her at that time which is interesting, as it led to a great change in the life of another man of local celebrity.

Alan had been to West Town Friends' School to see his daughter, and on returning called to see his first cousin, John Evans, of Delaware County, with whom, until that time, he had not had much acquaintance. Our mother and John's mother were sisters; but as both died while their children were yet young, and as the families lived in different counties, but little intercourse was had. On the next morning, after a night spent at John's house, Alan rose early and walked along the creek gathering and examining plants. It was a place abounding in wild plants. When John found him thus employed, he wanted to know what he was doing. Alan told him he was studying plants and explained to him the systems of Jussieu and of Linnæus. There was at once a new field open to John Evans, who up to this time had been an ardent fox-hunter, keeping a number of hounds, and riding a splendid horse over the hills and valleys of Delaware County in winter time, abreast of the best of the many who in that region at that time participated in the sport. His interest in the sport was gone; the kennel was broken up. With Darlington's Botany of Chester County in hand, he went over the hills and valleys of his native county again; but it was in search of plants, not of foxes. And now the two cousins who had been so long almost strangers to each other, became intimate friends, whose daily companions were Jussieu, Linnæus, Darlington and Eaton. It was a friendship and a companionship in which selfishness was unknown and which terminated only with life. Both busy men, engaged in industries for a livelihood, they still found time to traverse the counties of Montgomery, Chester and Delaware; the coal regions and the Alleghanies of Pennsylvania; the pine woods and sea shores of New Jersey; the Adirondacks of New York and the low-lands of Delaware and Maryland, to gather specimens of plants and minerals and

shells, and in those walks they enjoyed the teachings, not only of the eminent botanists, conchologists and minerologists with whose works they were familiar, but standing with Hugh Miller on "The Old Red Sandstone," they heard with him "The Testimonies of the Rocks," and saw with him "The Footprints of the Creator." It was thus that they were led step by step to that profound worship of the first great cause of creations so astonishing.

RESIDENCE OF W. B. DINSMORE, KINGS- TON, N. Y.

BY VALENTINE BOURGEVIN.

The most fashionable excursion for the lovers of horticulture in our day is to Locust Grove, the unsurpassed country residence of William B. Dinsmore, Esq., erected on a selected locality on the banks of the Hudson River, about one mile from Staatsburgh and five miles from Rhinecliff; a place with which the writer of this has been familiar for over a quarter of a century.

Walking up hill, the commencement of the park on the left, a well-trained arborvitæ hedge on the right and a piece of old forest were the first ornaments I observed. After arriving on the level, the rear of some plant houses became visible, and a large number of camelias, azaleas, etc., placed in this shady locality, enjoyed their summer rest. On the right an elegant glass palace, surrounded by some gorgeous flower beds, single plants and beautiful vases, were seen placed artistically in the short cut green grass. In the rear of this is another half-mile range of plant houses to be seen, of whose contents I will speak afterwards. Turning to the left, I was fairly charmed in beholding a most magnificent picture of modern horticulture. There were visible about four acres of gently rising ground in a perfect lawn, with the most artistic and tastefully laid-out flower beds of all forms, worked in all over this elegant green carpet. With a perfect excitement of delight I looked at this picture from all sides for quite a while. With the brilliant flowers General Grant geraniums are planted in large quantities and form the lower border. On the right side south there are large quantities of General Jacqueminot in a mass, and Caroline de Sensal as a fine contrast planted next beside some other prettiest kinds, filling the entire right border. The contrast of the giant rose bed is actually exquisite, and the contents strew their delicate odor all over this

precious picture. The upper part east also forms a frame with a broad strip of lawn grass with circles all along, forming a chain with different kinds of roses in each circle. Another chain-like formation planted with the most brilliant leaves runs along the central path. The back ground is partly shaded and provided with comfortable garden seats. Here we placed ourselves to enjoy this exquisite spot.

Mr. Emerson, the head gardener, here joined us and gave us all particular information. Admiring these enormous masses of plants, Prof. Rastery was highly pleased, and I was perfectly enchanted. Mr. Emerson, says it takes upward of a million plants to renew this plantation every year. Green, white, blue and red are the most striking colors; yellow, black and variegated make a pleasing contrast when placed scientifically. The plants are not allowed to outgrow or run into each other. Each color is perfectly distributed and shows off beautifully. The forms of the beds are all different; sweeps, graceful bends, twists, with beautiful stars in the centre, are of the most artistic composition and show skill and highly cultivated taste. The whole is an irregular regularity and a most harmonious arrangement. Rare specimens of aloes, cactus, dracenas, palms, crotons and other rare leaf plants are planted singly between these groups and make them more and more picturesque. One would think that this picture would look best in the morning when the dew-drops like diamonds decorate every leaf, but it shows far more brilliantly when dampness is evaporated and spectators place themselves opposite the sun in the morning westerly, and in the evening easterly, to get the best sight of it.

If a person devotes so much attention to anything of that kind and puts it together so artistically and tastefully, he has a right to find out at what time and what occasions his work will show for what it is worth. Mr. E. has even visited it on bright moonlight nights, and he thought he was well repaid; a more proper place where soft zephyrs impregnated with these heavenly perfumes fanned him in Morpheus' arms while he dreamed a happy dream could not well be wished for, and here he got the patterns of the most selected display of his flower beds. This reminds us of a young artist who was charged by an art loving king to fresco the inside of a cathedral. Every morning before he took his brush in hand he went to mass and kneeled down upon the stone-flagged floor, his hands

elevated, asking for grace upon his undertaking. In high ecstasy he was favored with a glance of heaven, and he from this copied the same heavenly figures on the walls which he saw up there.

After some time, leaving this charming view with regret, we went to the left (east side), which was planted with asters, gladiolas, Japan lilies, tuberose, dahlias, malvas, etc., according to their height, the highest-growing plants on the outside, thus accomplishing the intention of the artist as near as plants will grow. The whole length of this border and beyond is a range of newly-erected, roomy plant houses in one line but in four divisions, in which we found by a visit last winter: First, smilax of rare perfection forming elegant festoons four yards in length—an exquisite green trailing. Second, a complete assortment of agaves, selected specimens of all sizes and known varieties, which are used for adornment for summer plantation. Third division, all roses, healthy growing plants full of buds. Fourth, camellias and azaleas, a superb variety, and well grown, together with large orange and lemon trees. Then we came to vegetable houses where we saw the finest specimens of cucumbers, even to two feet long, in large quantities. Bush-beans, lettuce, asparagus, radishes and champignons were furnished in abundance, and added, no doubt, considerably to the delicacies of Mr. Dinsmore's table. From here we came to a long "lean-to" house facing south, where grapes of the finest varieties and large size are grown in quantities in the season. Out of the end of this a span-roof house, facing north and south is exclusively devoted to orchids. A collection of the rarest and handsomest epiphytes, with their many different formed flowers. They are amongst flowers what a mocking-bird is amongst birds. Grand specimens of *Phalænopsis Schilleriana*, with large spikes of beautiful flowers. *Saccolabium*, *Dendrobium*, *Phajus* were then in bloom, and attracted much attention from the visitors. On the north side is a large department attached, for the purpose of keeping plants back to enjoy their blooms at a late time. Then we came to another house in continuation of the graperies, used as a propagating house to raise the vast number of plants used for bedding out. This has lately been changed into three elegant stylish span-roof houses for the purpose of cultivating orchids. Mr Dinsmore has already one of the most extensive collections of this class of plants

in the United States; valuable and rare specimens of plants in bloom at all times, of which an assortment of Cattleyas, Papillios, *Cipripediums*, are now displaying their magic blooms. Mr. D. intends to use one of these three houses as a show house to exhibit only blooming specimens, and the other two houses to grow them.

At the end of this we came out at that stylish glass palace with two wings where we first arrived. On entering one feels transferred to another part of the world. The fashionable tiling of the walks, and the colored glass whose reflection plays so charmingly on ferns, palms and mosses, and although not natural, gives them a fantastic appearance, and renders a natural representation of a tropical climate. It makes a remarkable impression to behold this choice selection of tropicals; they are so tastefully placed and are in such a thriving, vigorous condition, that they are true representatives, and some, I think, better than I have seen in their native country. It looks as if there were all sorts of palms, some large enough to walk under, ferns and crotons. Also a large number of different store plants, all in all, an artistic composition showing the refined taste and talent of the superintendent. Every time we went around we found new objects of admiration. We only found, by coming out, that we had been relieved from an uncomfortable southerly temperature, enjoying the fresh air again. Mr. Emerson called our attention to the reflection in the blue glass inserted in this palace, of his fancy flower garden, of which I spoke before, and is located in front, and looks like a dream inexpressibly beautiful. No one should leave without enjoying and admiring this selected spot in miniature again.

(To be concluded.)

EDITORIAL NOTES.

THE PHILADELPHIA ACADEMY OF NATURAL SCIENCES.—The *American Naturalist* for August has its annual chapter on this institution. Those who do not quite agree with Professor Cope are styled "anti scientifics," and the estimable President, Dr. Joseph Leidy, is a "reputable figure-head" The "residuary legatees of re-action" have recently elected as curators two men of "no scientific reputation or position." A scientific man was elected to fill the Vice-Presidency, but in the eyes of Professor Cope "it is unfortunate that the gentleman so honored should be

an active opponent of modern scientific thought on the question of evolution."

Strangers who read Prof. Cope's paper, may suppose the academy governed by a few men whose mere whims are absolute law. Several hundred members constitute the academy, and these all have the privilege of voting for every officer. Nominations are open to every member. Regulations prevent any instantaneous filling of vacancies. Several meetings elapse before a vacant position can be filled. It will be, therefore, but fair for those who read Prof. Cope's tirade, to believe that the academy selects the best officers in its power. It is also but fair to remember that the offices in the academy are not solely offices of honor. They imply a great amount of personal attention. There are many admirable scientific men in Philadelphia members of the academy, but who are so engrossed with their pursuits that they rarely attend the meetings, and could not give that personal attention to the affairs of the academy which the "honors" demand. It must be within Prof. Cope's recollection that the offices have been so filled. If the academy has to choose between one who, in Prof. Cope's eyes, is "unscientific," but who can perform the duties of the office to the entire satisfaction of those who elect him, and between one who "holds some position," but can do nothing, it may be the academy's misfortune if it choose the former, but scarcely its fault.

And it seems still more to the credit of the academy that in electing the Reverend Dr. Henry McCook, a Presbyterian clergyman, as one of its two Vice-Presidents, it did not see in him either the clergyman or an anti-evolutionist, but simply an earnest devotee of science, and one who, at the same time, is willing to give a good share of very valuable time to the practical management of the institution. And further, if there should be any to wonder why Prof. Cope does not try to urge on the members the necessity of "reforming things," as he understands reform, instead of whispering his grievances through the *Naturalist*, in the ears of people all over the world who cannot help him; it may be also fair to remember that Prof. Cope has been a candidate for office on several occasions, expressly as the representative of these supposed reforms; and that the vote—not by a few "residuary legates," but by a very full attendance of the members of the academy has always been heavily against him.

It is of little importance to distant people how a local institution chooses to govern itself; but when they are compelled to listen to one side of the story, it becomes the part of justice that they should hear the other.

LEGEND OF THE CHEROKEE ROSE.—The *Christian Advocate* tells the following story, which we record, as we usually do in such cases, more as a matter of news than as a genuine legend. It is a misfortune that there is no way by which a genuine legend can be distinguished from a newspaper lie; but for the credit of the newspaper name from which we quote, we will hope that there is such a legend afloat, and that the story was not expressly manufactured for its columns.

It may be remarked, in passing, that the origin of the Cherokee rose on this continent is enshrouded in mystery. It was found by Michaux in the South, but has never been found wild since his time. It is hardly believed to be a native rose, though by analogy with some other rare Southern plants, it might be. It has Asiatic relatives:

"The legend of the Cherokee rose is as pretty as the flower itself. An Indian chief of the Seminole tribe was taken prisoner by his enemies the Cherokees, and doomed to torture, but became so seriously ill that it became necessary to wait for the restoration to health before committing him to the fire. As he lay prostrated by disease in the cabin of the Cherokee warrior, the daughter of the latter, a young, dark-faced maid, was his nurse. She fell in love with the young chieftain, and wishing to save his life, urged him to escape; but he would not do so unless she would flee with him. Yet before she had gone far, impelled by soft regret at leaving home, she asked permission of her lover to return for the purpose of bearing away some memento of it. So, retracing her footsteps, she broke a sprig from the white rose which climbed up the poles of her father's tent, and preserving it during her flight through the wilderness, planted it by the door of her new home in the land of the Seminole. And from that day this beautiful flower has always been known between the capes of Florida and throughout the Southern States by the name of Cherokee rose."

THE AMERICAN CANDLE.—Among the peculiarities of travel in France is that every morning you find two candles fresh on the mantel-piece of your room, and whether used or not, you find these daily "bougies" charged in your bill. It will be some consolation to the people of this country to know that in future "La Chandelle Americaine" is to take the place of the time-honored "bougie." At least "*La Science pour*

tous" says, as we translate it, "the American candle fulfills all the conditions of superior illuminating power. It will evidently dethrone the ordinary candle, which has existed all along only by virtue of a low price."

"*La Science pour tous*," or, as we should say, "*Science for all*," is very enthusiastic over the new light. It says "the new American candle marks a great stage in progress." Just what the American candle is does not appear; but the name of our horticultural correspondent, Charles Joly, seems identified with its introduction.

THE VICTORIA REGIA.—In the year 1842 it was my good fortune to behold this wonderful production of nature in the river Rupununi, one of the great tributaries of the Essequibo. After a toilsome struggle of six weeks in ascending the Essequibo, we passed the last cataract, and we were truly thankful to the Almighty that it had pleased Him to allow us to reach their termination without accident; and many an anxious moment we had during our ascent of this noble river which, in the number and height of its cataracts, surpasses any river in British Guiana. We entered the Rupununi, and three days after (as if we should be rewarded for our previous sufferings on the Essequibo) the Rupununi, on its right bank, expanded into an extensive bay. It was an enchanting scene. So enchanting was the view that unfolded to our eyes that we were at a loss where to commence, in order not to overlook any object in this lovely picture, the most prominent of which was the Victoria Regia, which I had longed so much to behold. The margin of this bay was bordered with this magnificent plant. The grandeur of tropical scenery was here the most striking and the most sublime I ever had as yet seen. The numerous Palms, *Uranias*, with their wide-spreading leaves, gigantic trees around raised their lofty crowns to an enormous height, displaying the greatest contrast in form and appearance of their foliage. Lianas clung to their trunks, interlacing their wide-spreading branches, and having reached their summit, aerial roots descended again to the ground, and appeared like the cordage of a ship. Nature, not satisfied with the soil allotted to her, had decorated the trunks and limbs of trees, even the surface of the water, with a carpet of plants, interspersed with these magnificent flowers. Twenty-eight years have now elapsed since this lovely picture unfolded itself before my eyes, but it is still as

fresh in my memory as if I had seen it but yesterday. Long before we reached the bay the Eastern breeze wafted the delightful odors towards us. The whole margin of this bay was bordered with the gigantic leaves of the Victoria, interspersed with the magnificent flowers of all shades from white to pink, scenting the air with their fragrance. On the leaves many aquatic birds were running to and fro, chasing the numerous insects which were humming around the brilliant flowers. I may observe that we stopped many hours to enjoy this sublime picture, and that our pencils were soon engaged in transferring to paper this striking feature of this remarkable spot. We rowed from one plant to another, finding everywhere something to admire, and measuring the gigantic leaves and flowers. The largest of the former was $7\frac{1}{2}$ feet; the largest of the latter 14 inches in diameter. I never was anywhere more forcibly impressed with the thought that the productive powers of nature, on receding from the pole, had collected themselves in their greatest strength near the equator, spreading their gifts with open hand and manifesting the abundant fertility of the soil.—*Dr. R. Schomburgk.*

GLOBBA COCCINEA.—In the old world they use beets in flower-gardening. The æsthetic admires the effect they produce, but when the uncultivated is told what they are, and learns they are beets only, he is apt to exclaim, "What beets! the common beets we grow in the gardens!" and the plant seems to him to have already lost half its beauty.

Here we have a very beautiful new plant. If we say it is one of the ginger family, may be it will risk its popularity with those who only know ginger as a cordial, or as something which ranks with pepper or salt. It will be best for these people to do as the doctors do—give it a name they do not understand. Instead of pure water or bread crumbs, they will write *aqu. dis.* or *pan. pulv.*, and the patient meekly swallows down the wonderful stuff and soon gets well. So instead of a "ginger," we can call this a Zingiberaceous plant, and none be the wiser, and all admire.

It was introduced from Borneo by Mr. Curtis, the collector for the celebrated firm of James Veitch & Son, of Chelsea, London, who give us the following account of it:

"The stems, which are about as thick as a goose quill, are much crowded, twelve to eigh-

teen inches long, and gracefully arching on all sides, giving the plant a very elegant contour. | anth yellow. The plant is continuously in bloom during the greater part of the year.



They are furnished with deep, glossy, green leaves, and terminate in a dense raceme of flowers, of which the bracts are scarlet and the peri- | "The elegant habit of this plant, its richly-colored flowers of singular structure, and their long duration, render it a most useful and inter-

esting addition to our Stove-flowering plants. The flowers are also effective for bouquets.

"It was awarded a certificate of merit by the Royal Botanic Society, July 6th, and a first-class certificate by the Royal Horticultural Society, October 11th, 1881."

It ought to be a good thing for summer-flowering in American garden borders.

THE COST OF NURSERY PRODUCTS.—Mr. Barry, in his address to the Nurserymen's Convention at Rochester, believes that the reason so many nurserymen fail, is from a want of perception of the actual cost of raising trees, taken from an average of years. He says:

"The parks, cemeteries, pleasure grounds, public and private, everywhere give evidence of the nurseryman's skill, industry and enterprise. Much more I might say in this line for the nurserymen. How will it be in the future? Will they do as well? I hope they will. They should do even better, and they will do better, provided the profits of their business will place in their hands the necessary means. I have some fears for the future—perhaps they are not well-grounded. For several years past the profits have been small, if any—indeed, it has been for many hard work to keep their heads above water, in spite of hard work and rigid economy. The cost of labor and all the materials used by the nurseries have advanced within fifteen and twenty years from twenty to fifty per cent.; while prices of trees and plants have declined in about the same ratio. This has produced a great change. I think that much stock has been sold below cost. In computing the cost of trees, a great many things must be taken into account besides the actual expense of growing the tree in the field, and I think it safe to say that most crops of trees cost at least double what they are supposed to do. It is necessary to look at the result of several years and several crops, the failures must be reckoned in as well as the successes. I think this is a matter of vital importance to the trade, and I trust it will receive due consideration."

THE AMERICAN NURSERYMAN.—In his Rochester address, Mr. R. Barry well remarked: "I have a pretty good knowledge of the nursery business in this country, for nearly half a century, and I can say that the nurserymen, on the whole, have conducted their business with a degree of enterprise, liberality and skill that entitle them to the admiration and gratitude of the American people. They have filled our land from the Atlantic to the Pacific with the finest fruits. They have scattered broadcast and brought within easy reach of all our people, ornamental shrubs and plants of every description."

RESIDENCE OF W. B. DINSMORE.—Mr. Bourgevin's account in another column will be found delicious reading for those who love gardening. It appeared originally in the *Kingston Freeman*, but Mr. V. rightly judged it would be acceptable here, and we are obliged by his thoughtfulness in sending it to us.

THE NATURALISTS' LEISURE HOUR AND MONTHLY BULLETIN.—By Prof. A. E. Foote. One of the results of the United States Centennial Exhibition held in Philadelphia, was the establishment of this now celebrated naturalists' agency. Specimens of natural history, in every department, are collected for the use of students; but perhaps its greatest utility is in the means which it affords scientific men of procuring old and very often essential works, which are no longer issued by their publishers, or, as it is technically called, works out of print. The July number is wholly given up to a catalogue of surgical and medical works. A rough estimate of the books offered gives us 2,260, and we fancy no such complete list of old or scarce medical works has ever been offered before. An enterprise like this deserves universal support. The monthly is sold at seventy-five cents a year, but we suppose specimen copies can always be had by writing for them to Prof. A. E. Foote, Naturalists' Agency, Philadelphia.

THOMAS MOORE.—Every intelligent person knows of the *Gardener's Chronicle* so long edited by Dr. Lindley. Dr. L. was such a distinguished botanist and so thoroughly versed in the theory of horticulture, that it was barely thought possible that his place could be fully supplied. But the editorship fell to the joint work of Dr. Maxwell T. Masters, and Thomas Moore and the *Chronicle* became another illustration of the fact that the world does not stand still when even the greatest leave it. Under the joint editorship of the gentleman named, the *Gardener's Chronicle* was never more valuable than it is to-day. But Mr. Moore has now passed his threescore, having been born at Stoke-next-Guilford in England on the 29th of May, 1821; needs some cutting off of labor, and so retires from this charge. He is still in the position occupied by the celebrated Miller, director of the Apothecaries Garden at Chelsea. Though the author of "Handbook of British Ferns," and other works, much that he has done is like the editing of the *Gardener's Chronicle*, work which does not tell before the world, though often greatly more useful than

that which shows. The standard reference book, "Treasury of Botany," is indebted for a good part of it to his pen, as also is the Botany and Horticulture of the *Encyclopædia Britannica*. Mr. Moore still continues to edit the *Florist and Pomologist*, and in many ways less imperative though no less useful, his pen will continue its valuable work.

On his retirement from the *Chronicle* his many admirers presented him with a silver pitcher and a purse of \$1,500.

THE PENN MONTHLY.—The publication of this interesting magazine ceased with the issue of the July number.

HOW TO OVERCOME THE POTATO DISEASE.—By J. L. Jensen, Director of Bureau Ceres, Copenhagen, Denmark. Translated from the Danish to English, and published by John Menzies & Co., Glasgow, Scotland. This is a treatise of sixty-five pages, and one which deserves more than usual consideration. It is written by a gentleman of high scientific attainments, and of vast practical experience, and a careful reading of his work brings the conviction that he is on the right track.

The potato disease is well known to be caused by a fungus, *Peronospora infestans*. It does not follow diseased or sickly vegetation, but feeds on the healthiest as well as the weakest. It is the only cause of the disease. This is well known to be beyond question. There are, of course, climatic reasons which will favor more vigorous growth and more vigorous destruction some seasons than others, just as there are some seasons when grass or grain grow better one year than another. Another fact is that some varieties seem to suffer more than others—that is to say while a plant of one kind, with the disease, has many bad tubers, another kind, with the disease, has the tubers comparatively sound. As the disease attacks all alike, and as the constitution of the potato in all varieties is alike, Mr. Jensen was led to examine the cause of this. He found that those varieties which rooted deepest—that is those which buried their tubers the best, were most free from disease. This he thinks reasonable from other considerations. The spores of the fungus are conveyed through the atmosphere to the plants. Earth is a protection. The spores can only get to the tubers by being carried by rains through the earth, or by dew down the main stem; the farther from the main stem and the deeper the tubers, the greater the protection.

On this reasoning many experiments were made, which are detailed in his work, proving that the deeper the potatoes the greater the protection.

So he earths up the potato. He finds no difference in the quantity per acre between flat culture and earthing up; but he does find a remarkable freedom from disease by earthing up just as much as the potato plant will bear. The ordinary method of earthing up ridges does not do this well. The earth is made deeper about the stems where there are no potatoes, but it is left thin just where the potatoes are. This is the pith of the volume, one which it will profit every large potato grower to peruse.

CONTRIBUTIONS TO AMERICAN BOTANY.—By ASA GRAY. Professor Asa Gray, though he must have no very distant views of a "threescore and ten," still continues to work as hard as ever, for which the great world he lives but to benefit by his knowledge, will be very grateful. This essay, contributed to the American Academy of Arts and Sciences, is one of great value. It is entitled studies of *Aster* and *Solidago* in the older Herbaria. The "year in Europe" which so many take for relaxation, was chiefly spent by Dr Gray in examining material for the continuation of his synopsis of the *Flora of North America*. In the course of his studies he found very much which threw light on these two very difficult North American Genera, and this information is the chief topic in this "contribution." Then there are descriptions of new plants of Arizona and adjacent districts, of interest to horticulturists; may be a new horse-chestnut, *Æsculus Parryi*, allied to *A. Californicus*; a new blackberry, between *Rubus pedatus* and *R. chamæmorus*, called *R. lasiococcus*, although these species have not, so far, entered in any way into garden culture; a new *Ribes* of the black currant section, *R. viburnifolia*; several new *Pentstemons* and a large number of composite plants. There are eighty-eight new species in all. When we remember that it takes an immense amount of research before we can be sure an unknown plant is new, we may have some idea of the great labors of Dr. Gray on this large number.

The number also shows that this great country has by no means been all explored when such a great number of novelties can be found in two or three years of botanical rambles. Many engaged in this work have not been forgotten by Dr. Gray, and we find among the new plant names, some in honor of such well known col-

lectors; as Pringle, Gattinger of Nashville, Rothrock, Lemmon, Vasey, Mohr of Mobile, Wright, Muir, Palmer, Shockley, Lemmon, Parry and the Parishers. Dr. G. pays a well-deserved compliment to these energetic brothers, and gives an entirely new genus to Mrs. Lemmon, under the name of *Plummera floribunda*, "under the name which she until recently bore, the partner of her husband in the severe labors and privations of Arizona exploration, and in the honor of this and of many other interesting discoveries." It is a composite, and the affinity may be, with *actinella*.

THE NEW BOTANY.—By Prof. W. J. Beal. Professor Beal is one of the best of our modern collegiate teachers of botany, and a lecture which he gave on the best method of teaching the science, given before the Michigan State Teachers' Association, and noted in our columns, at the time, has been widely commended. To meet the demand for it Mr. C. H. Marot, of the GARDENER'S MONTHLY, has issued an edition which has been revised by Prof. Beal, and which can be had from the office at twenty-five cents each.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY.—Part II., 1882. This has been too long on our table waiting an examination. As usual it is filled with good things. We learn that the income of the society, in 1881, was \$25,108. The library of the society is of great value. Its present value is given as \$20,746. The society has a debt of \$84,000, but it is worth some \$281,000.

EUCALYPTOGRAPHIA.—The eighth decade of the Eucalypts of Australia, by Dr. F. V. Muller, of Melbourne, has just appeared. The kinds now figured and described are *Eucalyptus cordata*, *erythronema*, *gamophilla*, *macrocarpa*, *Preissiana*, *pruinosa*, *pulverulenta*, *pyriformis*, *santalifolia*, *sepalcralis*.

ELEMENTS OF FORESTRY.—By Franklin B. Hough, Cincinnati. Robert B. Clark & Co. 1882.

To review this work in the critical sense would do an injustice to its excellent author. Although it is entitled "Elements of Forestry," it is rather a treatise on forestry, and the chief aim has evidently been to gather together a great amount of information that may be of service to those interested in American forestry. From this point of view the work is a success, which could not be said of it in the light of an elementary work. Dr. Hough disclaims, in the

preface, originality for the cuts employed in the book. There is much laid down as scientific fact, which few modern scientific men would subscribe to, and which it is quite likely Dr. H. would not himself advocate if placed before him in the shape of distinct propositions. Take, for instance, the paragraphs and cut on page 67, of a two-year-old growth of oak wood. "The wood, *h*, is the growth of two years, and is separated by the line *jj*." There is nothing just here to explain the manner in which wood is made. It would have been just the place to explain that when wood commences to form in spring the cells at the outside of last year's layer divide and form a new course of cells; the cells of this new course again divide and form another and (in the English Oak as it grows in favorable soils) it makes usually a dozen of these successive cell divisions during the month of June, when all the wood growth is accomplished for the year. The last thing the growth of the season results in, early in July, is the formation of the large ducts; so large that they can be seen by any good naked eye. Thus we have as the result of the "annual growth of wood" in the English Oak, about a dozen hair-line circles, and one large circle in which are most of the large ducts, and by which we readily detect the "annual ring" even in an old tree. But in this cut we have only four of these hair lines and the "line *jj*," is behind the ducts instead of in front, and makes it appear what is contrary to fact, that the ducts commence instead of terminate the annual cell growth. The cut was evidently intended to illustrate some other points when originally called into service, and these probably minor points which in such cases the engraver is very apt to overlook, but they become major points if we are to regard the work as really an "elementary work." The cuts indeed frequently seem out of place. At page 262 is one of the "Wild Black Cherry," but there is nothing called "Wild Black Cherry" in the text. There is "The Black Cherry (*Prunus serotina*)" described, but the cut does not belong to that species, but is evidently intended for the common Mazzard, or possibly the "Red Cherry." *Cerasus Pennsylvanica* is described in this work as the "Bird Cherry (*Prunus Pennsylvanica*)."

It would probably have been better if the author had not been so anxious to give us everybody's notions, which by the necessity of so much dove-tailing, make the work far too cumbersome, and not always logically clear in se-

quence as a purely elementary treatise on forestry would have been. In such a treatise all that is of no immediate service should be carefully eschewed. Of what possible use is the numbering of paragraphs in a compiled work? In real elementary works like Lindley's *Theory of Horticulture*, or Gray's *Structural Botany*, or Sach's *Text Book*, the paragraphs are numbered because there are cross-references all through the pages. But here we have paragraphs numbered to the total amount of 1,428, without one solitary use of them throughout the work that we remember! If the author had only thought to use them in his index, as Gray has in his *Structural Botany*, it would have been an admirable idea. Let the reader, however, look on this "Elementary" title as a misnomer, and pass the criticism which a real work of that character would rightfully suggest—taking the work rather as a contribution to forest knowledge and nothing else, he will thank Dr. Hough warmly for his labors. There is a vast amount of information gathered together in the book which makes it one of great value. This is rendered practically available by the admirable index at the end. It is a common fault to find excellent works almost useless for want of a comprehensive index. Dr. Hough's work will be a model in this respect. Though there are but 331 pages in the book, a rough estimate shows 1,938 references in the index. If it cannot be considered that the title is borne out by the body of the work, it can at least be said it is among the best—perhaps the best reference book on American forestry that has yet appeared, and no arboricultural library can afford to be without it.

TENTH CINCINNATI INDUSTRIAL EXPOSITION PROGRAMME OF THE HORTICULTURAL DEPARTMENT.—This is one of the best conducted and most useful of all our annual horticultural exhibitions, and it deserves the support of exhibitors from all parts of the United States. The premiums are liberal and the judgments have always been regarded as intelligent and fair. The exhibition in this department will be this year, from September 6th to October 7th. Different things on different days. Charles H. Law, Chairman of Committee, Cincinnati, will send programmes.

RANDOLPH COUNTY (IND.) HORTICULTURAL SOCIETY.—This society is following in the good work of Montgomery (Ohio) Horticultural Society, as we judge from a sample of its proceedings now before us. The meetings are held on the grounds of amateurs, and are pleasant, social affairs, independent of the horticultural stimulus they give. On June 17th the meeting

was at the house of D. E. Hoffman, at Winchester. They take dinner, then hold the meeting. On this occasion the discussions were wholly devoted to fruit culture.

SCRAPS AND QUERIES.

A PECULIAR AURIPHONE.—The *Farm Journal*, of Philadelphia, is the centre of a wonderful set of correspondents, who are very much alarmed about the editor of the GARDENER'S MONTHLY. Every once in a while some one writes to it about him, seeming to prefer the *Farm Journal* to any other for making the inquiry. Sometimes a correspondent wants to know about "the State Botanist," or the "editor of a bogus paper;" and then, again, it may be "a botanist of Germantown," or "a nurseryman of Germantown," whose doings worry the correspondents' souls. The most interesting feature of this literature is the answers. They fit the questions wonderfully. Indeed, if the answers had been on file, waiting for the correspondence to come along, they could not be more timely, seasonable and fresh.

The latest is from a correspondent who is troubled about an article written by a "high authority" in Germantown for the *Germantown Telegraph*. The editor gives solace to this anxious heart by assuring it, that there are lots of persons who love to write "in order to hear themselves talk." The editor, it must be said to his credit, generally tells his long list of almost heart-broken correspondents that the queer fellow who "writes to hear himself talk," and who does so many other extraordinary things, cannot possibly be the editor of the GARDENER'S MONTHLY. And yet the editor of the GARDENER'S MONTHLY does not know but he might be a proud listener to the sweet sounds which it seems float in the evening breeze from some one's pen, and is almost sorry the *Farm Journal* cannot assure its disconsolate friends that they have actually identified the right man.

DERBY ARBORETUM.—"J. B.," Cedar Falls, Iowa, says: "I was very glad to read in June number of GARDENER'S MONTHLY the communication from Wm. J. Harding respecting the Arboretum, Derby, England, my old home thirty years ago. How it revived old associations! It was open two days each week for the public. When I left, one day an entrance fee of one shilling was charged, the other day was free; the latter day was used chiefly by the poorer class.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

OCTOBER, 1882.

Number 286.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

One of the most amazing experiences is the lack of common sense in trifling things so often apparent in gardening affairs. The writer of this is often asked "what shall we do?" when a dozen or two caterpillars are eating up somebody's plants, and the inquirers seem quite stupefied when told to fall to and pick them off. We have seen this season numerous valuable evergreens, which the owners would not lose for hundreds of dollars, totally destroyed by a few score of "bag-worms" or "drop-worms," which could have all been gathered together and destroyed in five minutes. The different kinds of arborvitae and firs are especial favorites with this species of insect, and especially this season about Philadelphia numerous valuable specimens have been destroyed, because of the stolidity of those in charge. In like manner the people of Philadelphia are writing to the papers about the hairy caterpillar, the produce of the Orgyia moth. The sparrows made an end to the measuring worm, and other pests of the street trees, but this hairy fellow was too much for them, and the nocturnal habit of the moths was against their destruction by the bird. It is the only serious insect pest left in the large cities. It is

very evident that the insect loves to deposit its eggs under the protection of bark, brick coping, or some other retreat, and the easiest of all things would be to provide such retreats where the moths could weave their cottony cocoons, and then be all destroyed in a mass. But nobody thinks of it, or of anything but to write to the papers and worry the editors as to "what shall we do?" There is no doubt but a persistent effort at hand picking and trapping these insects would not involve much time, and be very effective in keeping down many noxious insects.

The past season, in most parts of the United States, has been very favorable for tree growth, and we expect to hear of much more tree planting than usual this fall. It must be remembered that no one can tell whether a winter will be very severe, or a summer very hot or dry. These are the conditions that most affect success; and there is, therefore, little in the matter of the best season for planting to choose between. The best rule is to plant when we are ready. Rare and valuable trees and shrubs can be protected from severe winds by corn stalks, branches, or some similar material; and where this care can be given, we should be inclined to look on the fall as the best time for transplanting them.

There is probably no branch of gardening

more pleasing than that which embraces hardy bulbs. They come into flower so early, and grow with so little care, that every one may grow them at a small cost. Of those which may be planted this month are Hyacinths, Tulips, Crocus, Narcissus, Japan Lilies, Anemones, Ranunculus, Crown Imperials, Snowdrops—among the better known varieties. All of these prefer a soil that is rich and not dry, but by no means a wet soil. The Tulip, Anemone and Ranunculus will do better in a dryer soil than the others; but the two last do not do well where the sun will shine directly on them when in flower. In planting these in the flower beds, it is well to set them so that spring-planted flowers for summer bedding can go between them. Where some loose litter can be had, it may be used to cover the bulb ground with. It prevents thawing of the soil till the warm spring rain comes; and we presume our readers know that it is the repeated thawings which “draw” the roots of things out in the late winter months, and leave them bare to the sun, and to their great injury.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower bed.

Many persons complain that they cannot get the Pansy to produce flowers as handsome as they see them represented in seedsmen's plates; but it is because they are not sown early enough. If not already done, sow them at once,—if they can have the protection of a cold frame all the better. These cold frames are very useful in small flower gardens. There are many little things pretty hardy, but which are much better with this protection. Many people have much difficulty in keeping over choice kinds of roses, such as Teas, Chinas and Bourbons. But if these are lifted from the ground early in October and set thickly in a cold frame, they can generally be kept very well. It is not so much the degree of frost which injures them, as it is the drying influence of the frost; and the frame aids in the prevention of evaporation. We know of a rose grower who keeps the tenderest of roses in pots in a house without any fire, though the temperature outside goes below zero, and the roses are frozen solid most of the winter. But he waters as regularly as through the summer, as the frost dries so. He finds even the tenderest

to get through the winter in this house as well as if there were no frost.

COMMUNICATIONS.

HARDINESS OF THE BERMUDA GRASS.

BY E. S. CARMAN, EDITOR OF RURAL NEW YORKER.

The plot of Bermuda grass was not altogether killed at the Rural Farm by the past winter. Here and there the roots sprouted and have made an immense growth the past summer. We have here (Bergen Co., New Jersey,) two plots growing from seed, the one sown in the house in flower-pots last winter—the other sown outside in early spring.

Many have doubted this, believing (as the Bermuda is thought never to perfect seed) that the grass must be some other kind nearly resembling it. Such is not the case. It is the true Bermuda, in proof of which I send you a flower-spike.

THE AILANTUS.

BY L., GARDEN CITY, LONG ISLAND, N. Y.

Thanks for your defence of the Ailantus, one of our most beautiful and useful trees, one that, for the roadside, or for poor soils, when scarcely any other tree will succeed, has no equal. F. J. Scott, Esq., says of this tree; “There are many features of the Ailantus that give it a rare and peculiar beauty, admirably suited to add to the variety of colors and forms in groups of trees. We have no tree that can take its place; none with such immense compound leaves, which alone give the tree a unique character; and they are thrust out boldly from the tree, thus showing their character to the best advantage. Their color is also of that thrifty yellowish green, rare among our native trees, therefore more needed in contrast with them.” Why this warfare on a tree of such great beauty, and withal so valuable as a timber tree? Is it because of the disagreeable odor of the flowers? If so, that is easily avoided and the tree spared to our roadsides. The tree is dioecious; that is, the male or staminate flowers are borne on one tree, and the female or pistillate flowers on another. The female flowers are inodorous, in fact inconspicuous, and are succeeded by those beautiful clusters of fruit, an important feature in the beauty of the tree. To avoid the disagreeable odor,

plant the female trees only. As this tree is rapidly increased by root-cuttings, this is a very simple matter and may be carried on to an almost unlimited extent. Any farmer who has one of the fruit-bearing trees of medium size can get sufficient young stock, by cutting up the roots into short pieces, in the course of two years, to plant all his roadsides.

EVERGREEN HEDGES UNDER TREES.

BY D. O. MUNSON, FALLS CHURCH, VA.

In a recent number of the *GARDENER'S MONTHLY*, in reply to Dr. C. A. K., Chester, Pennsylvania, in relation to planting evergreen hedges in close proximity to maple trees, planted twenty feet apart, you say you would not advise it under any circumstances, as the roots of the trees absorb the moisture the evergreens ought to receive.

About ten years ago I planted a Norway spruce and American arborvitæ hedge within two feet of a row of maple trees that had been planted ten years before—the maples are now large trees. The hedges did finely—hardly lost a plant, and they were never watered except by rain. They are both very compact and in every way doing well.

Three years ago I planted thirty rods of hemlock hedge within four feet of a row of maples, and that hedge is growing finely.

A neighbor across the way, twelve years ago, planted an American arborvitæ hedge under large cherry and maple trees—maple trees on both sides of hedge—in many places very much shading it. That hedge is now compact and beautiful, none of the plants died, and no water was used.

There is also an American arborvitæ hedge in the neighborhood that was planted in a line with a row of maples five years ago, and it has done well so far.

THE BEAUTY OF THE DANDELION.

BY MARGID DIGRAM.

The yellow of the dandelion flower is certainly as fine a bit of color as can be found in the floral world. This composite flower head is a disk, or button, of clear gold, as bright and handsome as a new ten-dollar piece, but unlike the coin, it is richness (and beauty, I would like to say), without value, uncared for and unsought.

It blooms upon every field throughout the Spring and Fall months, but, excepting by chil-

dren, it remains upon them untouched. Running on to ripeness the occasional breeze catches the pappus-lightened seeds, and carrying them upward and away, seems to say, "you are at last appreciated. Though the recognition is late, we have plucked you as early as we were able; heretofore, not appearances, but weight, prevented."

This plant might be potted in the Fall, then placed in cold frames, or pits, and whenever wanted carried into the hothouse and forced into bloom. This is a hint for the florist, and, acted upon, will probably furnish him with a new plant for mid-winter or late winter ornamental purposes: That the treatment suggested would be successful, I think there is but little doubt, as we know that during the early months of the year, and late again, quite into winter, a warmish, sunny day, not uncommonly brings into sight, in sheltered places, a number of nests of these flowers.

When the weather is cool, the scapes, or flower stems, of the dandelion, are short; but in warm weather, when the plant is in rapid growth, it will be remembered that these stems shoot out to a greater length and become quite long enough for bouquet purposes. With hot-house forcing, I think the same result would, or might, be realized in January, February or March.

Grown in very shallow pots, say two inches in depth by four or four and a half in width, and the same placed within some more attractive earthen or metal vessel of equal shallowness, the entire plant with a half-dozen blooms upon its rosette of carefully grown and protected leaves, would be a pretty object for the festive table.

Who will give our humble and familiar friend a cold weather trial? It would be an easy task, as the plant is always so near at hand.

PROPAGATING HYDRANGEAS.

BY JAMES C. CRAVEN, PHILADELPHIA.

In the propagation of *Hydrangea paniculata* my experience agrees with that of Mr. Abbott, in your June number, although I never used the branches of the plant for stakes. I have several large plants, and frequently have found that the branches touching moist ground will root. These I have cut in June and July, and in this way I have all the young plants I could desire for myself and friends.

H. paniculata and *H. otaksa* have always seemed to me extremely profitable plants to the florist, being, in my judgment, so easy of propa-

gation; the price of my original small plants, which came to me by mail, was fifty cents each.

Let any one take cuttings of *otaksa* or *paniculata* in June and July; insert them in sand under glass, at the same time keeping them moderately moist, and I am sure he cannot fail to have all the young plants he may desire.

THE CYPRESS FAMILY IN TEXAS.

BY G. ONDERDONK.

The *Cupressus Knightiana* and *horizontalis*, are making an almost incredible growth here. One of the latter, now ten years old, is about a foot in diameter at the ground, and thirty feet high. We in Western Texas have too much lime in our soil for pine, but I believe forests of *Cupressus* are practicable. I have thirteen varieties doing well enough. Every spot seems suited to cedar. I have the common red cedar, nine years from the seed bed, and now large enough for posts. Is the wood of the *Cupressus Knightiana* and *sempervirens horizontalis* valuable? If so, their culture here will be an object for timber purposes.

The latter rivals the pine for thrift and straightness, while the former far exceeds it and everything else I have seen in rapidity of growth.

CHEAP PAINT.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

The past two years I have been experimenting in cheap materials for painting both outside and inside; and find the following gives the most satisfaction where one does not wish to go to the expense of lead and oil paints.

Take a half bushel of lime, put it in a barrel and pour enough boiled water upon it to allow the lime to slack without its burning; cover in the steam, and, when dry, run it through a medium sized sieve.

Take a bucket half full of this powder and pour as much sweet milk upon it, as will fill the bucket three-fourths full; the milk must be sweet milk, either new or skimmed will do, but butter-milk must not be used. To every bucket of this mixture add one pound of silicate of soda and stir the whole thoroughly; if too thick, add more milk; if too thin, add the slacked lime until you have it to suit you. This can be applied outside or inside on smooth or rough sur-

faces, with almost any kind of brush, and does not require very skilled labor in its application.

This produces a dull white color; but if a gray, or black, is wanted, add lamp black. Venetian red will produce a reddish brown, or pink color, according to the quantity used. Spanish brown will give another shade. Ultramarine blue will give any shade of blue that is desired.

With these materials, all of which are very cheap, almost any desired tint may be produced, which can be applied to wood, brick, stone, or plaster any where. If oil paint has been used before, the slacked lime should be used with half whitening.

THE SIBERIAN ARBORVITÆ.

BY ROBT. DOUGLAS, WAUKEGAN, ILL.

In two publications, not yet a year old, I see the Siberian *arborvitæ* referred to as a native of Siberia, and in one of them it is stated that the oak leaved mountain ash is in reality a variation of the White Beam tree of Europe.

I have grown thousands on thousands of trees from the Siberian *arborvitæ*, the seeds gathered from trees standing remote from any American *arborvitæ* in fruit, and in every case have found four-fifths of the seedlings undistinguishable from the American *arborvitæ*, except that, on the whole, they would appear a little more compact in the block after being transplanted than the American; the remainder would partake more of the appearance of the Siberian, so much so in one instance that we selected about eight hundred from a seeding of over fifty thousand, and set them in a block away from other *arborvitæ*s. Nearly all of this eight hundred had much the appearance of Siberian, but did not grow uniform; some of them were quite dwarf. Finally we did not find one in the whole lot that we considered worthy of propagation, as being in any respect better than the Siberian.

We have grown a large quantity of mountain ash trees, both from the weeping mountain ash and the oak leaved mountain ash. The seedlings from the weeping mountain ash could in no way be distinguished from seedlings grown from the common European mountain ash, where the two stood side by side in seed drills, the plants from, say, five to fifteen inches. I offered Mr. Phoenix the ten rows grown from the weeping if he could distinguish them from the common; there was not a weeper among them,

nor any way to distinguish them from the common.

I have grown many thousands of seedlings from seeds of the oak-leaved mountain ash, and in one sowing of at least twenty thousand trees thought we had got something nice. I was so selfish as to go and select every promising tree out of the lot before digging them. These were planted for shade trees along the inside of the fence of one of our nurseries. They have stood there nearly, or quite, twenty years, and stand there now; I have grown our mountain ash seedlings from them for many years, yet never raised a White Beam from them, nor a mountain ash as good as the oak-leaved, or differing from the common type of the European mountain ash enough to make it worthy of propagation by grafting or budding.

I am sorry to be compelled to confess that all my attempts to produce something nice from sports or hybrids have been absolute failures. Whatever I have produced of value has been produced by sheer accident, and in nearly every instance from common seeds sown in the nursery beds or nursery rows.

You may recollect a conversation I had with you and promised to raise the green variety of the black spruce to see if it would produce both the green and glaucous varieties; I have done so several times, but in every case have the green variety pure, although I saw the seeds collected myself from trees standing near several other kinds of spruces. I sent cones to Dr. Engelmann several years ago, but although the cones were larger and somewhat different from the glaucous variety he could find no botanical difference. By the green variety I mean the red spruce of the nurseries.

[A work "just issued," which should refer to the Siberian *arborvitæ* as a distinct species, or as a native of Siberia, must be regarded as a work of very poor standing. An author who, in these days, could make such a statement should lay aside his pen forever.—Ed. G. M.]

EDITORIAL NOTES.

MR. H. B. ELLWANGER'S ROSE CROSSES.—In the editor's notes of his Rochester visit, the remarkable crosses of Mr. Ellwanger were noticed, though the plants were not then in flower. The *Country Gentleman* quoting our remarks, adds: "The flowers of some of these new sorts, which

we have had an opportunity of examining, are of great beauty; one of them in particular is fully equal to the famed Alfred Colomb, if not its superior, while the growth of the bushes shows much vigor."

FLOWERING OF THE VICTORIA REGIA IN THE OPEN AIR.—Mr. E. D. Sturtevant, the well known grower of aquatics at Bordentown, New Jersey, has flowered this famous water lily of the Amazon in the open air this summer. So far as known this has not been attempted since Mr. Caleb Cope grew the plant in the open air in a cement tank in the centre of his vegetable garden, now over thirty years ago. Mr. Sturtevant, however, seems to have been even more of a success than Mr. Cope, as the leaves are six feet in diameter, and has actually perfected flowers. The flower opened first on the 3d of September, and was twelve inches across.

The flowering in this way has excited intense interest in Bordentown, and we shall not be surprised if the fact of its flowering in the open air does not induce similar attempts at the culture of the queen of flowers. It ought to be more easy South than here.

EUONYMUS RADICANS.—This now well-known evergreen creeping plant is decided by Maximowicz, in a recent paper published in St. Petersburg, to be only a condition of the common *Euonymus japonica*. This decision is startling at first thought, as the whole appearance and character is so very different from the common or broad-leaved Japan *Euonymus*.

But when we remember that the creeping fig of our greenhouses, *Ficus repens*, has recently been proved to be a condition of a great, broad-leaved form; and that even our native burning bush, *Euonymus Americanus*, has a slender trailing condition, as well as makes a good sized bushy shrub, there is good reason to believe that Maximowicz is right. He says it will creep up trees to the height of twenty feet. On the grounds of the writer there is a plant which has already ascended some ten feet of a large cherry trunk. We endorse an opinion that it is an admirable creeping evergreen.

BUDDED ROSES.—Speaking of the *Niphetos* rose, Mr. Mansfield Milton, in an essay before the Portage County (Ohio) Horticultural Society, says: "I have often seen the buds of this rose over three inches in length, but is not suitable for planting out of doors. It is a weak grower unless well protected and grown under glass. It

makes a splendid rose budded on a good vigorous stock. Roses are often much changed by budding on different stocks. American florists generally advocate the growing of roses on their own roots and use this as a recommendation in favor of their stock. In the neighborhood of Boston, where the best roses in America are grown (thanks to the enterprise of the florists, supported by the Massachusetts Horticultural Society), most of the fine roses exhibited at the exhibitions of that society are grown on budded plants. Roses having strong, vigorous constitutions, are not much improved by budding on the Manetti, but most all those of weak growth—and some of the finest hardy roses grown are weak growers—require before perfect flowers can be got, to be budded on some strong stock. Such roses therefore as Niphetos, the weak growing Hybrid Perpetuals, and a good many of the Hybrid Teas, are much improved by budding on

strong stocks, either Manetti or some other strong grower."

PROPAGATING HYDRANGEA PANICULATA.—Mr. E. S. Carman says: "Referring to E. Williams's article—'Propagating *Hydrangea paniculata*'—if cuttings be made from the half-ripened wood, they will strike in sand as readily as willow cuttings, or in soil either."

ROSA MINUTIFOLIA.—Under this name, in the August Bulletin of Torrey Botanical Club, Dr. Engelmann describes a new native rose, found by Dr. Parry and his exploring party in lower California in April last, forming dense thickets in the arid landscape; a much-branched shrub, two to four feet high, with showy pink or white flowers, and "a most striking and lovely species, distinguished from all other roses by its minute, deeply incised leaflets." Dr. Engelmann publishes it under the name of *Rosa minutifolia*.

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

It was feared that the widely spreading taste for cut flowers would militate against the love of cultivating plants. But it does not appear to have done so. Greenhouses and conservatories are just as numerous as they ever were, and indeed rather more numerous. Those who get the love of flowers from mere adornment soon learn to care for the plants which produce them.

In growing winter flowers, much care is given to the nature of the soil, the aspect, and many points other than the most essential, which are the care of the roots of plants and preservation of the foliage from insects. When plants are overwatered the roots decay, and the plants become sickly or die. Too much care cannot be given to over-watering. If the pot is large and the roots comparatively small, the soil is almost sure to sour, when the roots will decay. It is much safer to keep plants in as small pots as the roots will go into than to risk larger ones; and every care should be taken to facilitate the passage of water through the bottom of the pot. In potting it is best to fill the pot to the brim, even rounding the soil

over the brim. It is almost impossible for such a potted plant to get too much water; but it necessitates watering oftener than when potted in the usual way, or the plant may suffer from being too dry.

In taking up things from the ground for potting, care should be taken to have the pots well drained, with pieces of potsherds over the hole. The more rapidly water passes through the soil the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the objects of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

As for insects, the repeated use of the syringe is one of the best preventives of their attacks, and if water can be used for syringing heated to 130°, there will be few complaints of insect attacks.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be placed at once. Four or five inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves for force.

COMMUNICATIONS.

CELOSIA CLARKII.

BY MR. VL. DE NIEDMANN, WASHINGTON, D. C.

Last year I had the pleasure of sending you some flowers of *Celosia Clarkii*, calling your attention at the same time to the pretty habit of this plant, suggesting also that it probably might make a nice addition to our winter-flowers. But little I expected at the time that the plant would, in this brief period, become such a general favorite among our floricultural friends, both as bedder and winter flowerer, that I think, I am justified in relating now a few facts and experiences with this *Celosia* in order that some others may also have the pleasure of learning something about this new pretty stranger, who already claims to have gained so many friends and admirers. Among a collection of Chinese seed received from Scotland in 1879 there was a package of *Celosia*—of which the *Celosia Clarkii* originated; the young plants were potted off and planted out on a flower-border after the usual manner, but attention was soon called to the above variety by its fine, strong branching habit and the multitude of bright unusual shaped flowers; and about September, when in full bloom, it could be seen from a great distance, the pinkish-red flowers, when close, resembling a densely furnished miniature fir-tree. Seed was anxiously looked for, but upon a most careful examination there was not a single seed to be found and the only chance of perpetuating was left from cuttings, which were mighty scarce, as all seemed to be flower wood. A few of the most likely pieces were taken just before frost; they rooted freely, and commenced, as soon as

they were established in pots, to throw up flower shoots over flower-shoots, nothing but flower-shoots—and so on all winter. In May, 1880, all the old plants were set out in a fine sunny exposure, and about July they were on a fair way to equal, if not to supersede the parent plant. This little experience of the preceding winter demonstrated the fact, that it would make one of the most prolific winter flowering plants. The culture is quite simple; cuttings made early in August of young growths just showing flower-heads will root as easily as *Coleus*; pinched back, and shifted on in five-inch pots, put out of doors along with *Stevia*, *Eupatorium*, *Bouvardia*, *Poinsettia*, and other winter-flowering plants. They will be by the end of September in a splendid condition for winter, and which they are to my utmost satisfaction in a *Bouvardia* house, the contrast between the *Bouvardia* and the *Celosia* flowers being a most pleasing one.

FERTILIZING MOSS.

BY PETER HENDERSON.

I notice in the September number of the *GARDENER'S MONTHLY* that the subject of the French fertilizing moss is again discussed, more claims being made for its utility; and as my name has again been drawn into the matter allow me to briefly state what is known about it. No doubt many of the readers of the *GARDENER'S MONTHLY* may remember that a Mr. Chamberlain, a gardener of Newport, R. I., and subsequently of Brooklyn, L. I., made some twenty or twenty-five years ago a considerable sensation by growing and fruiting grapes and peaches and growing many flowering and ornamental plants in baskets in prepared fertilized moss. The subject was thoroughly discussed at that time in the *New York Horticulturist* and I think also in the *GARDENER'S MONTHLY*, but was soon dropped as it was found that it was not practical to shift plants so grown, so that when the supply of plant food became exhausted a fresh supply could not be as conveniently given as when the plants were grown in soil in the usual way. Mr. Chamberlain like the Frenchman was very mysterious about the ingredients he mixed with the moss and talked glibly about the "chemical combinations" he had discovered to cause such wonderful results. What the ingredients he used were I do not know any more than I know what is in the *Dumesnil* moss, but few professional horticulturists of any experience could be found gul-

lible enough to believe that any fertilizing material not already known to horticulture could be mixed with moss suitable to feed plants.

The agent of the Dumesnil Moss Company called on me in June and I consented to test the claims of his "secret." Accordingly he sent me a package of the moss which we gave a thorough comparative test with our mixture used for moss mulching, which is composed of about fifteen parts of moss to one part of pure bone dust. Also to make the trial more thorough the same number of plants were potted in ordinary soil. We used—12 plants *Latania Borbonica*; 12 *Coleus*, one sort; 12 *Caladiums*, one sort; 12 *Pandanus*, one sort; 12 *Crotons*, one sort. We washed the soil from the roots and potted in five inch pots four plants of each with the Dumesnil moss, and four of each with our moss and bone mixture, and four of each with ordinary soil. The plants were placed together on one of our greenhouse benches and were given exactly the same treatment. No difference was apparent in any of the three lots from first to last and all grew well, but there was no superiority whatever in those grown in the French moss over the others. I last month invited the New York agent of the Dumesnil Moss Company to examine them, which he did, and expressed himself as being unable to see any difference in the three lots. The matter can be easily tested by any one. Moss and bone dust can be got almost anywhere and if it proves to be as useful for the purpose claimed as this French moss, whose fertilizing principle is a secret, then it is difficult to understand where the value of the "secret" comes in.

[This is precisely our view of the matter. Those who are introducing this moss culture have felt sore that we have not been able to give it a cordial endorsement. It is a great pleasure to encourage everything new,—or even attempts at novelty—and it is not right to discourage progressive attempts. We could not see that there was any special novelty in this mode of culture, and so in justice to our readers could not afford to endorse it as such; but we do think there are some advantages in moss culture which deserve development,—and then there are always some who would sooner pay more for an article already prepared than get the material and mix it themselves, and in this view we see no more reason why the sale of fertilizing mosses may not be as much encouraged as paregoric, lawn grass seed, or the thousands of other cheap simples for which as "mixtures" we pay dear.—Ed. G. M.]

ALLAMANDA.

BY MR. CHARLES E. PARNELL.

The genus *Allamanda* embraces some of our most desirable as well as some of our most showy stove plants. Of this splendid genus *A. nerifolia* is deserving of a prominent place in all collections of stove and greenhouse plants on account of its free flowering qualities.

This handsome species attains a height of five or six feet, and is of compact bushy habit, producing its bright yellow flowers in the greatest profusion for at least nine months in the year if kept in a healthy and growing condition. On account of its floriferous habit it is unequalled as a plant for decorative purposes, while as an exhibition plant this *Allamanda* is excelled by none.

The flowers of this species are small in size when compared with others of the genus, but I do not consider this much of an objection when we take into consideration the immense number of flowers which it produces.

Whether grown in the greenhouse or plunged in the flower border, it is equally at home, flowering in profusion in both places. This *Allamanda* is a plant of very free erect growth; it is perfectly free from all insect pests, and is moreover a plant of comparatively easy culture providing it can be given sufficient heat during the winter season, say a temperature of from 50° to 60°. It requires a compost of two-thirds fibrous loam, one-third thoroughly decomposed manure and a little sand to render the compost a porous and open one; give good drainage, and if large specimens are wanted do not permit the plants to become pot-bound. When growing, water freely and syringe occasionally, while an occasional watering of liquid manure water will prove to be very beneficial. This *Allamanda* can be plunged in the flower border about the middle of May and taken up about the middle of September. The plant should be repotted before being plunged. It is an essential point in the cultivation of this plant in the open air to keep it at all times abundantly supplied with water. Propagation is effected by cuttings of the young shoots which root easily during the summer months, and if the young plants are liberally treated, and kept in a growing condition will produce fine specimens in the course of a few years. With me this *Allamanda* occasionally ripens seed, but I have never tried to raise plants from them.

GLAZING WITHOUT LAPPING.

BY PETER HENDERSON.

Some one in a recent number of the MONTHLY advises to glaze without lapping the glass. Before any one acts on that advice, he had best test its soundness by experimenting a little. When rebuilding our greenhouses here in 1878, I gave the "no lap" plan a careful trial by glazing in that way a section of a twenty-foot house, having an angle of about thirty-five degrees. We first tried it by showering over the glass with a hose, and found that it leaked like a sieve. Not quite satisfied with the hose test, we waited until a heavy rain fell, which showed nearly the same result; the roof leaked on that part where the glass had not been lapped so as to be destructive to anything growing underneath. Were it possible that the glass could be cut so that when butted together the junction would be perfect, then that plan would certainly be the best; but that would be next to impossible. In the trial we made the glass was selected with the greatest care, yet in many places the point of a penknife could be run between the panes where they were joined together; consequently that even at the steep angle we used it on, the leakage was such as to show that the practice was a bad one in any place where water falls on the greenhouse roof.

We find no better plan in glazing than that now almost universally in use of bedding the glass in a thin layer of putty and tacking down tight with good-sized glazier's points, using no putty on the top, but instead, painting thickly with white lead. The laps should never exceed one quarter of an inch, and often an eighth of an inch is deemed sufficient.

CYDONIA JAPONICA---THE COMING HEDGE PLANT.

BY. WM. WEBSTER, ROCHESTER, N. Y.

One of the problems which have long engaged the attention of horticulturists is that of a suitable plant for both ornamental and useful hedges; one that shall be characterized by its easy growth, strength, and durability, and that is capable of withstanding not only the attacks of animals but of injurious insects also. Some of the different species of Coniferæ make beautiful ornamental hedges, but practically are of little use when exposed to the attacks of animals. While some among deciduous trees such as the

Hawthorn and Osage Orange, though strong and hardy enough to resist the onslaught of animals frequently succumb to the more silent attacks of insects by which they often become infested. Hence it needs no prophet to foretell that the plant which combines in the greatest degree the different characteristics I have mentioned must be the favored one.

In looking over the nursery stock on the grounds of Mr. James Craib of this city in company with that gentleman, a short time since, my attention was attracted to a fine lot of seedling *Cydonia Japonica* plants, and on remarking upon their fine healthy appearance and uniformity of growth, Mr. C. informed me that he was raising them for hedge plants, and it was a subject that he had been experimenting on for some time, and to show how well he had succeeded invited me to go with him to a distant part of the grounds and examine a specimen hedge of seedlings. This hedge appeared to be about 150 feet long. The plants which had been transplanted were four years old from the seed; had been trimmed as needed, are now about three feet in height and the same in width. The plants are generally of uniform size, of robust habit and are now bearing a large quantity of fruit, of various shades of color; some are of a light green, others tinted like a ripe Apricot while not a few resemble Seckel pears. The foliage is dark green and the hedge as compact as any one could desire, and not a scale or bug of any kind to be seen on it. Here I remarked you have a "bonanza," and one that requires working and that ought to be made public, for this is the kind of hedge that we have been waiting for so long.

Perhaps on reading this some may smile and say what is there new about a *Cydonia* *Pyrus Japonica* hedge. I answer true to a certain extent there is not, for I have been familiar with the plant ever since I can remember anything about plants. Neither is there anything new about "electricity," except in its scientific application to the uses of the present time; this is an age of progress and none of us are too old to learn. I have seen much larger hedges of *Cydonia* than this one, but they were very much older. Mr. Charlton a neighbor of Mr. C. has a magnificent one which in its season is a perfect blaze of blossoms, and what has kept this plant from being more generally adopted has been the supposed difficulty in raising the plants. What is claimed for this seedling hedge, and which to

me is manifest, is its quickness of growth, its sturdy character and fecundity in early Summer. Mr. C. tells me it is a mass of bloom ranging through nearly all the gradations of color, from a bright scarlet to the various shades of orange to yellow and creamy white. If as I am informed this hedge is but four years old from the seed and is now, as any one can see who may choose to visit his nursery, loaded with fruit, his estimate of the crop being more than twenty bushels, the advantages of raising the plants from seed will be readily understood, especially as they can be raised with the same facility that apple seedlings can. The usual mode has been to raise the plant from root cuttings, but this is a tedious process especially in unskilled hands. When the fact is taken into consideration that nearly all plants that are raised from seed are not only of quicker growth but stronger and more durable than those raised from cuttings, it becomes obvious that if by raising the plants from seed at less expense and with half the trouble a good hedge can be obtained in four years, whereas by the old method of root cuttings it takes from seven to eight years to obtain the same results, the new one will receive the most favor. If these seedlings continue to bear fruit, as they now promise, and the fruit can ever be utilized as an article of commerce, it will become doubly valuable as a hedge plant. Having seen and grown the *Cydonia Japonica* as an ornamental plant in various parts of the country, from the Atlantic to the Pacific, I can testify as to its hardiness and adaptability as a hedge plant in nearly all parts of the United States and Canada, and doubt not that it could be made to succeed even on the plains or wherever water can be obtained to irrigate when necessary.

EDITORIAL NOTES.

FOSTERING A LOVE FOR FLOWERS.—A London correspondent says: "Window-gardening is fortunately not confined to a class. It is vastly on the increase among the poor, and in many a side street and alley now green leaves and modest flowers are nursed and coaxed and petted, to try and make them 'grow up good.' The local schools, in many places, have fostered and encouraged the nurseries, and by offering prizes have provided a humanizing and a useful employment for many a pair of little hands that

might otherwise have yielded to mischief. To-day (Saturday) the Aldenham Street Sunday-school has a grand children's flower show for the young gardeners of Somers Town, and in many other districts the pretty idea is being carefully worked out."

MOSS CULTURE.—The *Revue Horticole* for July 16th, says that those who have had any doubt about the success of growing plants in moss, were surprised at a recent exposition by the collection of M. Chate, of Paris. It goes so far as to say that it doubts whether the best earth culture could produce plants like them.

IMITATION FLOWERS.—A correspondent of a London paper asserts that imitation plants, in pots, are so perfect that a fashionable lady in London bought one, and after "growing" it for three months "under the rules," sent it to a floral exhibition, and had it returned with an indignant letter. It is at least a satisfaction to know that floral judges cannot yet be deceived. Some of these judges might find employment in American flower shows.

NEW OR RARE PLANTS.

YELLOW CALLA LILY.—At the Rochester meeting, flowers of the *Richardia hastata* were exhibited by Messrs. Hallet & Thorpe. The spathes are of a greenish yellow and dark base, and it is a very interesting addition to cultivated plants.

HELICONIA AUREO STRIATA.—In America such plants as *Strelitzias*, *Marantas*, *Hedychiums*, *Bananas*, and others which must be preserved in greenhouses most of the year in the old world, make admirable plants for the adornment of our open-air gardening, and we are always glad of every addition to this class of plants. When they have served their purpose as summer ornaments, they are re-potted and adorn our greenhouses or rooms during the winter season. The plant which we now introduce to our readers promises to be one more of these beautiful things. It was introduced by Mr. Wm. Bull from the South Sea Islands, and he gives the following account of it: "A bold-looking stove plant of noble aspect, resembling some dwarf *Musa* in its general appearance. The stems, which are formed, as in *Musa*, of the closely enfolded sheathing stalks of the leaves, are

striated with green and yellow, and become recurved at the top. The leaf blade is elongate to the margin, traced out by yellow lines producing a freely marked and very striking varie-

HELICONIA AUREO-STRATA.



ovate, cordate at the base, and cuspidate at the apex; deep green with the course of the parallel-curved veins, which run out from the costa to the margin. Though closely related to the stately Banana, it is a comparatively dwarf plant, though one of bold and imposing character."

SCRAPS AND QUERIES.

GRAFTING EPIPHYLLUM.—"J. B." says: "I wish you or some of your readers would give the proper method and time for grafting the *Pereskia* stock with *Epiphyllum*. Also, the best mode of treatment during summer. Also, the best blooming varieties."

CELOSIA CLARKII.—Mr. A. Thorpe, Washington, D. C., writes: "I send you by mail a box containing specimen pieces of *Celosia pyramidalis* Clarkii, of which perhaps you will remember, that Mr. Neidman, of the Botanic Gardens, sent you some specimens last fall for your opinion. Your answer was favorable about it, as you said you considered it a very valuable addition to our fall bedding and winter flowering plants; the piece I send you is not quite so fine as he sent last fall, as it is not in full flower until the first of September. I also send you specimens of three varieties of *coleus*; the seed was collected by Mr. Neidman in the South Sea Islands.

[These specimens confirm our former good opinion. It is a very desirable plant for winter flowering.—Ed. G. M.]

CATTLEYA DOWIANA.—"C" asks: "Will some of the readers of the MONTHLY be so good as to give me some information concerning the treatment and habits of *Cattleya Dowiana*?"

CULTURE OF CLERODENDRON IMPERIALE.—"E." says: "Will some of your readers, who have flowered *Clerodendron Imperiale*, kindly give me the result of their experience with it?"

NEW COLEUS.—Mr. A. Thorpe, Washington, D. C., writes: "I send you specimens from pot

plants of *Coleus*, Gen. Garfield and Garland. We raised last year five or six hundred seedlings from seed furnished us by Mr. Neidman, and propagated about twenty-five varieties we thought specially good. The three we now advertise were particularly fine as pot plants through last winter, leaves of Mrs. Geddes grown on to an eight inch pot, often from ten to twelve inches long, and eight to ten wide, which, together with its great substance of leaf and beautiful colors, make it a very desirable plant. As a bedder it is very fine, standing full sun and shows well in a mixed bed where individual beauty is the object." General Garfield is not quite so large in the leaf, but looks exceedingly rich among other foliage plants; it will be sure to make a mark as a bedder, as it shows magnificently at a distance, and is extra fine at a short distance. Garland makes a fine pot plant, coloring up splendidly and looks well bedded. We have six more seedling bedders which we propose to send out in February or March, that are better than anything yet sent out in their color.

[The great value of *Coleus*, now that they have become so numerous, is in their ability to make good colors for massing with other things in the open ground. Single leaves will not decide this. All we can say is, that the leaves were very beautiful indeed, and the varieties will probably prove among the most desirable.—Ed. G. M.]

CALCEOLARIA CRENATIFOLIA.—"C. E. P." asks: "What is *Calceolaria crenatifolia*? and is *Ficus radicans* distinct from *F. reptans*?"

[*Calceolaria crenatifolia* is an old Chiloean species, long since gone out of cultivation. The two *Ficus* are forms of one thing.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The work of an instructor must of necessity be to a great extent experimental, and he must often lose in experimenting what other cautious people gain. So in Plum culture, the writer has been endeavoring to learn what there is in every-

thing recommended as protective against curculio. For years past different things strongly recommended by eminent men have been fairly tried with absolutely no result. This year the old-fashioned plan of shaking the trees and collecting the insects has been resorted to, and as a consequence we have bushels of plums. It is

clear to our mind that there is no other remedy than shaking the trees, and this is not a severe or expensive remedy when systematically attended to.

Plant fruit trees as early as possible. Deep planting is an injury, though they can be set with more impunity deeper in sand than clayey soil. Mound the earth about the stems; it aids against drawing out by frost. Ram the earth very tightly about the roots, and prune the twiggy branches from the tops. Severe pruning at transplanting is the best insurance against loss.

If older trees have moss, or scale, or have had red spider in the summer, prune away the twiggy portions, and wash with whale-oil soap and sulphur. Grape vine stems may be peeled of old loose bark and washed in the same manner. Grapes may also be pruned at once, and if in a region where they are liable to suffer from frost in winter, bend the stems down and cover with earth. Where Raspberries are also liable to winter kill, cut back one-fourth of the wood, and bend and bury in like manner. Where Strawberries are liable to draw by frost, it is best to cover them with straw or some dry material. These are often injured by covering with manure or other material which favors dampness, and strawberries are often injured by it. They hate damp.

There is little else to be done in the fruit garden at this season, except gathering and preserving late crops of Apples and Pears, and preserving them for winter.

In no department of gardening is a deep and rich soil more important than in Vegetables; and at this season we could not give better advice than to lose no opportunity of improving it in this respect. Trenching may be carried on whenever the ground is not frozen over an inch in depth. We are not in favor of that species of trenching which throws the surface-soil to the bottom and brings the sub soil to the top, in the preparation of a new garden. This should only be adopted for worn-out soils. The proper plan is to throw out the surface-soil on a strip three feet wide, then breaking up the sub-soil thoroughly to the depth of one or one and a half feet. On this broken sub-soil the surface-soil from the next trench is thrown, and so on until the whole be finished. The manure should be so applied as to be worked in with the surface-soil, as the work proceeds. It is little use to attempt to grow vegetables unless the soil is so treated. They

may be and are grown on thin soils, not only at a great expense for manure, and a great risk of dying out in a dry season, and of having the roots rotted out in a wet one. As long as the frost, severe enough to injure the celery crop, keeps away, it may have earthings up. Care must be exercised in the operation not to let the earth get into the hearts of the plants, or they will be liable to rot. When the plant has evidently finished its growth for the season, measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. Where large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be accessible. It always keeps best in the natural soil, where it is cool and moist, and free from frost; and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips, and other root crops will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar, or be buried in the soil, heads downwards, to keep out the rain, or laid on their sides as thickly as they can be placed, nearly covered with soil, and then completely covered with corn-stalks, litter, or any protecting material. The main object in protecting all these kinds of vegetables is to prevent their growth by keeping them cool as possible, and to prevent shrivelling by keeping them moist. Cabbage plants, lettuce, and spinage will require a slight protection before hard freezing. This is usually done by scattering straw loosely over. The intention is principally to check the frequent thawings, which draw the plants out of the ground.

In making new vegetable gardens, a south-east aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing too great a run of water in heavy rains. The plots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If

water can be introduced, it is a great convenience.

Asparagus beds, after the tops have been cleared off, are better covered with litter, or stable manure. The plants shoot easier for it next season.

Sometimes Broccoli does not head before there is danger of frost especially if growing vigorously. If taken up with small balls of earth, and set in a damp cellar they will still perfect themselves.

COMMUNICATIONS.

IRRIGATION IN KANSAS.

BY J. TEMPLIN, HUTCHINSON, KANSAS.

The art of agriculture by the aid of artificial irrigation, is a very ancient one. The most ancient authors mentioned it in a way that shows it to have been understood and practiced from time immemorial. The ancient Egyptians, Persians, Babylonians, Assyrians and Chinese constructed extensive and costly systems of ditches and canals for irrigating purposes. Portions of Arabia were made productive by an extensive dam and reservoir built before the days of King Solomon. The Pharaohs constructed an extensive canal for irrigating purposes near if not exactly on the route of the present Suez Ship Canal. The Romans constructed canals and aqueducts for this purpose, the ruins of which are the wonder of the traveller in Italy to-day. The Carthaginians, Phœnicians and Moors employed this means to promote the fertility of their soils. In modern times many of the nations of Europe resort to this method of culture.

On this continent the Spanish invaders found very extensive works for irrigation in Mexico and Peru. This method is extensively resorted to in some of the Western States and Territories at the present time. Some of the finest productions of California are the result of this manner of cultivation. This is also employed in Arizona, New Mexico, Colorado and in Utah, where the desert has been made to rejoice and blossom as the rose.

The experience of the past and the present proves that where irrigation is possible it is the most reliable method that can be employed to secure moisture for growing crops. Even where the rainfall is supposed to be sufficient for the wants of growing crops, it is well-known that there will often be times when the crops will

suffer, sometimes to the extent of a failure, because at the critical juncture of the crop the rain fails to come. The rainfall of Western Kansas amounts to an average of only about sixteen inches, which is far too small to meet the wants of ordinary crops. It is true that broom corn, rice corn and sugar cane do succeed here fairly without irrigation, but other crops fail, except in some exceptionally wet seasons. This has led to the inauguration of the enterprise of irrigation in that portion of the State that borders on the Arkansas river. This river, fed by the melting snows of the mountains, affords a large amount of water, particularly during that season of the year when the growing crops demand the greatest amount. There is in the three most western counties lying along that river in this State over 100,000 acres of land that are subject to overflow by irrigation without carrying the water out of the immediate river valley. Several companies have been organized and several ditches are already in operation. The Garden City Irrigating and Power Company has a ditch eight feet wide, two feet deep and twelve miles long, and it will irrigate 12,000 acres. The Kansas Irrigating Company are cutting a canal thirty miles in length, fifteen miles of which is already dug. This is twenty-two feet wide and two feet deep, to be made four feet when the demand for water shall justify it. The Minnehaha Irrigating Company have twenty miles of twenty feet in width and three feet in depth. This ditch will irrigate about 20,000 acres. But the most important enterprise of this kind in this part of the country is that of the Great Eastern Irrigation Company, with Senator Plumb and other capitalists at its head. This is to be a canal thirty feet wide and three feet deep, and will extend some fifty or sixty miles. It will probably be led out into the higher ground, and thus be made to do service in several counties. The fall in the river is so great (seven to eight feet to the mile), that there is no difficulty in conveying the water to the higher grounds. The usual method by which irrigation is carried on here is to run the main ditch along the upper side of the land to be watered, and led by lateral drains convey the water to the particular place to be irrigated and by shallow furrows extend it to every part of the field. The success that has attended this mode of culture in this section has been very flattering indeed. The crops mostly tried under this system are onions, cabbage and potatoes, though all the common crops have been tried sufficiently to prove they may be

raised with success. Thus seventy-five bushels of oats and thirty of wheat have been raised per acre. It is rather too high and the nights too cool for corn to do well, though forty bushels per acre have been raised of other crops. Onions, 400 bushels per acre; cabbage, 4,000 heads; Irish potatoes, 400 bushels; sweet potatoes, 600 bushels; melons, 8,000; turnips, 1,000 bushels, and others in like proportion. And this is no more than any one can do who will use skill and industry in the business. There is still Government land near this place (I speak more particularly of Garden City, Sequoyah county), and the railroad company is offering its lands for sale. A large immigration is coming. It is noted here that irrigation is a grand success in Kansas.

RABBITS IN ORCHARDS.

BY GEO. W. SLOAN, JUNEAU, WIS.

Having profited by the valuable information contained in the *GARDENER'S MONTHLY*, I feel it my duty to contribute something for the benefit of fruit growers. A few years ago I was greatly annoyed with rabbits barking my young apple trees. To prevent their depredations I made ropes out of hay, commonly known as "thumb ropes." These I wound around the trunk of the trees, from the roots to the first limbs, in the fall. I left them on all the following summer, and when I took them off in the fall, I found the bark fresh and healthy and free from blotches. I repeated the operation for some years, leaving the ropes on during the summer, removing them in the fall and replacing them with new ones. I have healthy, vigorous trees, free from fungus and all disease, and yielding an abundance of fruit. I recommend the process, not only to protect the trees from rabbits, &c., but to protect the bark from the cold winds of winter and the hot sun in summer.

SOME DESULTORY NOTES ABOUT STRAWBERRIES.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

About 1845, H. E. Hooker planted an acre with the Virginia Scarlet. It was considered a very novel venture and an immense strawberry bed. The fruit, the first ever sold in Rochester, was put in round pointed baskets, which were strung on a string and sold by his partner, at retail, from a fruit stand. Others took up the culture soon after, and Rochester has become quite a strawberry centre. The dealers are reported to

have paid out for strawberries this season, in this city, eighty-four thousand dollars (\$84,000). One canning house absorbed, I understand, ten thousand (10,000) quarts per day. The same house is said to have canned ten tons per day and two hundred tons in all—of cherries.

Regarding new varieties of strawberries it seems to me we are not making much progress in the direction of quality. We get them larger and larger all the time, but not better. Have we to-day any strawberry, possible to obtain a fair crop of fruit from, under ordinary garden culture, of high quality? Have we anything as good to-day as the almost forgotten Hovey Seedling? If so, what is it? It seems to me we are, with all the almost endless list of varieties, greatly lacking a good berry for the home garden. Something is wanted not so sharp as Wilson and not so flavorless as Sharpless, and the balance of the list of big berries.

The Bidwell, in my garden, is a dismal failure. The plants grew with great vigor; the set of fruit was more than abundant. The fruit grew to fine size, and the few that ripened were very beautiful in appearance; but very much the larger part never ripened. They either withered or rotted before fully ripe. The tips would remain green and hard, and by the time they were tender the balance of the berry was ruined. The quality of the perfect specimens was of rather low grade, but as good as ordinary market sorts may be.

My soil is a deep, very rich dark loam, and has been in sod for a dozen or more years. The plants were well watered. Other sorts did well. On grounds near my own, but of light colored loam, this sort did no better. It does not seem to be suited to this vicinity.

I am greatly pleased with the fruit of the Longfellow. It is a long-fellow in shape, and its deep color and regular form please the eye. In quality it is about on par with most of the big berries, but rather better if anything. The vine is very slender, but does not seem feeble. For the home garden I consider it well worth a trial; for field culture I doubt it's being popular here. The Warren is large and handsome and good, and seems to be a promising sort.

If one can be contented with very mild flavor, I know of no sort for general culture for the home garden, so valuable as the Cumberland. With me its growth is vigorous, the yield fully as great as the Wilson, the fruit very large, tender, handsome and good for a mild flavored berry.

The Sharpless sells well in market bringing about double prices at retail. But I don't like its ugly, shapeless form, its pasty flesh and insipid flavor.

A GRAPE FOR CALIFORNIA.

BY B., NEWBURG, N. Y.

Newburg is likely to add one to the list of grapes for the California vineyards. The "Welcome," previously noticed here as a promising grape for the greenhouse in the Middle and Eastern States, has been sent out beyond the "Rockies," and thus a correspondent writes of it from San Saba, July 18:

"Every shoot was killed in April, and only the stump of two years' growth, about half an inch in diameter and four inches long, was left. Now one shoot is over twenty feet long, another fifteen feet, and a layer has shot up five fine vines. Only one vine in my collection of twenty varieties shows more vigorous growth. Eight clusters were allowed to ripen, and my neighbors pronounce them the best they ever saw. Not a berry fell or cracked."

This is, indeed, high praise, and I hope to hear of still further success.

HOW TO CROW EARLY CABBAGE.

BY AUGUST D. MYLIUS, DETROIT, MICH.

I sow the seeds of the kinds I wish to grow in February or first of March, in small shallow boxes in forcing pit, hot-bed, or if these are not to be had, a sunny window of the house will do. The boxes I use are eighteen by twenty-four inches, three inches deep; made of one-half inch boards. The kinds of early cabbage I generally raise are Early Jersey, Wakefield (best if pure), Early Winningstadt, Early Summer and Fother's Early Drumhead. The first two for early; the others for second early. I only treat the first two as above stated; the second early I sow in common hot-beds 1st to the 15th of March. After the seeds sown in boxes (say 15th of February) are up and about three inches high, it is necessary to transplant them in other boxes, like those they were sown in, about one and a-half to two inches apart every way; or, if any wish to have them in small pots (two and a-half inch), put one plant in each pot, and pots close together in boxes, treating the same as if planted in boxes. Pots are better than boxes and I use them largely. About one week or ten

days before planting in garden, they must be hardened off by exposing gradually, night and day, in open air. I set out my plants from 15th of April to 1st of May. The plants which are in boxes are taken in the boxes to the part of the garden where the ground is ready to plant. Take a garden reel, stretch out straight, take plants out of boxes with care so that the soil will stay on the roots. Plant Wakefield twenty inches in rows and Early Summer the same; the other kinds twenty-four inches. The rows should be thirty inches apart, so that a cultivator can be used. Early radish, lettuce, spinach, etc., can be sown between the cabbage rows, and be out before the cabbage will need all the room. After cabbage, celery can be grown on the same ground. In this way other vegetable plants can be raised to advantage. In fact, I have raised all the following with great success: Early cauliflower, early lettuce, early kohlrabi, early Savoy, early celery, early beets, early tomatoes, early cucumbers and early squashes.

EDITORIAL NOTES.

FRUIT GROWING AND GARDENING IN FLORIDA.—The *Florida Dispatch* notes the names and officers of twenty-four Horticultural and Fruit Growers' Societies which exist within the State.

STRAWBERRIES IN OHIO.—The following list of varieties exhibited the past season by Mr. G. E. Davis, of Edinburg, Ohio, shows how many old varieties are yet regarded as worth planting: Monarch, Cinderella, Champion, Forest Rose, Miners, Windsor Chief, Seth Boyden, Photo, Sterling, Cumb. Triumph, Sharpless, Peak's Emperor, Capt. Jack, Kentucky, Marshall McMahon, Crescent, Burr's New Pine, Lennig's White Charles Downing, Duchess, Jucunda, Golden Defiance, Crystal City, Metcalf's Early, Glendale, Wilson, Green Prolific, Triumph De Grand and Alpine, a new variety, resembles the Wilson, but said to be very much more productive.

THE GRAPE CROP IN THE LAKE REGIONS.—According to appearances, this has been an unusually favorable season for the grape in the Lake regions.

APPLE CROP OF MICHIGAN.—The crop is reported to be from one-half to three-fourths of an average crop. The impression is that the crop of the whole United States will be less than usual.

AMERICAN APPLES IN CHINA.—A correspondent of the London *Journal of Horticulture*, writing from Hong Kong, says: "Gardening by the natives is only carried on to a very limited extent. They grow different kinds of European vegetables in the cold season for the market, and some for their own use. The Chinese are great vegetable-consumers, and immense quantities of these arrive daily in Hong Kong from the mainland, a large quantity of which is grown in British Kowloon. Fruit for the Hong Kong market comes chiefly from near Canton, and consists of Bananas, Litchis, Largous, Persimmons, Carambolas, Peaches, Pineapples to a small extent, Pumeles, Oranges, Custard Apples, Mangos, Wampees, Rose Apples, Kumquats, &c. The best Mangos come from Manilla, and Pineapples and Mangosteens from Singapore and Bargpok, and Pumeles from Amoy and Swatow. Grapes are grown near Tientsin and Newchwang in the north, and are sent to Hong Kong; but the best Chinese Grapes are very inferior to English-grown ones, they are almost entirely devoid of the rich Grape flavor to which we are accustomed in England. Pears are grown on the opposite coast to Hong Kong, in places to a large size, and they are very good stewed; but though used as a dessert fruit, they would find no place on an English table, as in reality a good Turnip tastes better. Spongy Apples arrive from the north, but the best of all come from America."

VEGETABLE GARDENING ABOUT LOUISVILLE.—The market gardeners about Louisville are in a happy state of mind this year. Many have gathered about seventy barrels of potatoes to the acre, that sold early in the season at \$4.50 per barrel; and later on the yield increased to a hundred barrels to the acre, that sold for \$3.25 per barrel. Onions and cabbage, too, have been very large and fine, and have sold at good prices.

PREMIUMS FOR NEW FRUITS.—A raiser of new fruit has been pushing his novelty by virtue of an "award" by a prominent horticultural society. As the fruit is not exactly what is expected of it, it has become necessary to explain that the award was only made "to encourage exhibitors to bring things,—a compliment to the exhibitors industry and not as a reward for the fruit." We do not give names and details, because it is not our object to reflect on the circumstance so much, as it is to urge again what we have so often suggested, that individual competition has

gone beyond its day,—what we now want is competition with a high standard, and judges should be made to say in their awards how near the exhibit approaches it.

JAMES VICK STRAWBERRY.—Eminent pomologists in whom we have confidence, praise this new Rochester seedling, remarking especially on its productiveness.

STRAWBERRY BURR'S PINE.—This very old variety is still extensively planted in many parts of Ohio. Its remarkably superior flavor, compensates for comparatively small size.

THE SOUHEGAN RASPBERRY seems to be regarded by a good many raspberry growers as one of the best of black caps.

THE LUCRETIA BLACKBERRY.—The Dewberry has not hitherto given much to our lists of improved fruits, unless the Wilson should have had its parentage in some way connected with it, as some have guessed. But Mr. E. M. Teas says the Lucretia is a genuine Dewberry, found in West Virginia. It produces large luscious fruit, which ripens with the Mammoth Cluster Raspberry.

DORMANT BUD PEACH PLANTING.—At a recent meeting of the California Horticultural Society, an interesting discussion occurred on the judiciousness of planting fruit trees, budded the summer previous, and not yet started. Mr. Shinn said that "the peach may be planted in a dormant bud with a good deal of success. I have generally succeeded in getting three-fourths of them to make good trees. It has been my experience that the trees will not be so large. Dormant buds put in this spring, under the best circumstances, are not more than two-thirds the size of those that remained where they were budded. Peaches may be transplanted in dormant bud with a good deal of certainty. Beyond that, it is not desirable. I would not plant plums, apricots or pears in dormant buds."

THE AMSDEN PEACH.—This is getting praise in France. *Reveu Horticole* says two hundred trees grown by M. Baltet, near Hyères, yielded between 20th and 25th June, 3,500 kilogrammes of fruit.

FLORIDA ORANGES.—The culture of the orange in Florida progresses wonderfully. Over fifty million were raised last year, according to what are regarded as reliable estimates.

SCRAPS AND QUERIES.

HANSELL AND SUPERB RASPBERRIES.—S. C. DeCou, Moorestown, N. J., writes: "I see by GARDENER'S MONTHLY for September the Hansell raspberry, reported to have ripened June 4th, and the Superb, June 30th. I think there has got different years mixed. I was at the meeting of June 27th, at Hansell's, and the berries, ripe ones, were not very thick, but were said to have been a few scattering ones for a week before—not three weeks. I have no interest in one berry more than another, but I think this puts our friend Churchman to a disadvantage, and it would seem only fair to set him straight."

HANSELL AND SUPERB RASPBERRIES.—Mr. Churchman, Burlington, N. J., writes: "I don't mean to growl, nor wish to be considered as growling, but I cannot help feeling a little annoyed at the tenor of a couple of editorial briefs in the GARDENER'S MONTHLY for September, which appear to be penned under an evident misapprehension of facts; and as they are in such close juxtaposition as to lead to, and to seem to be intended as, a comparison between two raspberries (the Hansell and Superb), convey a wrong impression and one which does me some injustice. You state that the Superb commenced picking on 30th of June, and the Hansell 'this season,' June 4th, and for market June 11th. Now the proprietor of the latter only claims this as the fact in 1880, in which year the 'Superb' picked June 16th. This season, which is fully three weeks later than that of 1880, as any one who has seen the Hansell can tell you, it did not pick until June 26th. Is it at all likely that if they had picked for market June 11th, they would have waited until the 27th before inviting those 'eminent fruit growers' to see the show? I don't care a straw about that *post prandial* resolution in regard to the Hansell. I don't look upon it as in competition with my child, and never should have noticed it had they left my name out. For me to say that I 'don't consider the Hansell any way superior to the Superb,' would be 'damning' the latter 'with very faint praise.' But this thing of earliness is a matter that everybody is looking after, and it is important that no misapprehension should be propagated in regard to it. The Superb picked this year June 29th, within three days of the other, and I am quite confident that

if I had cultivated for fruit instead of for canes, it would have been, and will be always, under like cultivation, quite as early. The only point of superiority I yield to the Hansell is in carrying quality, which, being in consequence of its small lobes and great number of seeds, is at the expense of flavor, &c. As to all other points my opinion, which is altogether *ex parte*, cannot interest you; but time—perhaps too late for much profit to myself—will vindicate my claims for the Superb, all of which are stated in my circulars.

"It is perhaps needless for me to say that I don't write this for publication, but as I know you would not knowingly misstate anything, and as I equally well know that you are in error as to this one matter of the Hansell's claim to earliness 'this season,' I owe it to myself, as well as to you, and to all fruit growers, to set you right. Pardon me a few words more. In my circular are testimonials from three of the gentlemen who were at that meeting, and who will bear testimony to what I say above, and another one of them expressed to me the opinion that my one and one-half acres of Superb would turn off more fruit this season than the whole ten acres on the Hansell farm.

"Mr. Child, of the *Farm and Garden*, who reported the proceedings of that meeting, will also testify that on the 27th of June, the day of said meeting, there was no appearance or claim of any having been previously picked for market."

[The notes above criticized were made up from matter sent, and evidently "intended for publication." As the GARDENER'S MONTHLY has no interest in these matters, beyond furnishing news of any important matters to the reader, it may be best, for variety's sake, to offer this letter "not" so "intended."—Ed. G. M.]

HEALTHFULNESS OF PEARS PROPAGATED FROM PLANTS GROWING ON DWARF STOCKS.—Mr. Wm. Parry writes that he believes the Kieffer pear, and the other varieties of Chinese sand pear race, are not as healthy when propagated from plants grown on quince, as when from plants growing on standard trees. We believe Mr. Parry right on this point, and would extend it to all sorts of pears, as well as pear trees of this class. It is surprising that the point has never been suggested before. There seems to be no doubt but that, as the vital powers of a pear are avowedly checked in favor of the reproductive,

when it is grown on a quince, plants propagated from such trees will partake of the low vital powers engendered and be more liable to disease. Propagation should never be from trees grown on quince in any case, and Mr. Parry deserves the thanks of pomologists for calling attention to this novel but very important point in pear culture.

THE WILLSON PEACH.—On the first of September Mr. Pierpont Willson, Vineland, N. J., sent specimens of a seedling peach from a tree which came up in the ruins of an old cellar. They weighed, individually, about five and one-fourth ounces, and were about eight inches round. The form varies, from roundish to oblong; the color, yellowish white, with slight rosy cheek, or deep rose on almost pure white; the flesh is yellowish white, very juicy, and of excellent flavor. It is a free-stone, and dark red near the stone.

The varieties of good peaches under culture are now so numerous that it is impossible to say in what respect this may be distinct from all others, and we therefore name it with some hesitation. But should it be found to resemble some other already named and disseminated, it is safe to say the other will certainly be no better in size, beauty, or delicious "peachiness" than this. In all these points it is first-class.

DEGENERATE ALBANY SEEDLING STRAWBERRIES.—"F. J. U.," Eufaula, Ala., writes: "I planted a bed of Wilson's Albany strawberries, and took the plants from an old bed—three years old; astonishing to me, these plants grew better and more luxurious than I had ever seen, but they did not bear. I sold runners from this bed last fall, winter, and this spring, and all of my customers are complaining that their plants do not bear either. As I have never experienced the like, I ask you kindly to give me some information about this. Tell me, please, whether there are male and female plants in strawberries. I have never heard of it, but many a body says there are. Or tell me, please, whether you know another cause of their not bearing?"

[We have known exactly such a case with the Albany Seedling strawberry. A bed which had borne regularly for years, suddenly failed to bear any, and plants from this bed were in like manner barren, much to the annoyance of the nurseryman who sold the plants, and of the customers who bought them. We know of one nurseryman who gave up growing the Albany solely on account of this tendency to give out.

The normal condition of the strawberry, as in other allied Rosaceous plants, is to be hermaphrodite; but it is very liable to have abortive stamens, or abortive pistils, and hence to be what pomologists call, "staminate" or "pistillate," and these characters once assumed, are, to a certain extent, hereditary. At one time it was supposed that the characters once assumed, were as unchangeable as "males" and "females" among animals. But this was fully discussed a quarter of a century ago, and the fact shown to be that heredity had not an absolute control of this feature. In other words the sexual characters of strawberries sometimes change.—Ed. G. M.]

WHITE BLACKBERRIES.—Mr. E. L. Parrish, of Nashville, Ohio, sent us a box of white blackberries, but instead of sending as we always ask friends to do, "articles and communications for the editor to Germantown," they were addressed to the publication office in Philadelphia, and were a mass of rotteness by the time they were re-shipped to Germantown. Although the odor was horrible, we had a distant view of them, and may say that they appeared to be larger than light blackberries we have seen before, and believe the kind may be desirable.

THE BOSS WATERMELON.—Messrs. Landreths write: "We send, per express to-day, a sample of our boss watermelon, to which we invite your careful and critical attention. We trust that its merits will justify you in agreeing with us that it is 'The Boss.'"

[Some humorist has said that there is something in the atmosphere about colleges, where young men are preparing for the ministry, which is inimical to the proper maturity of watermelons. They at least get full opportunity to mature in the "atmosphere" of the writer of this—that is, as watermelons generally mature; but we should have to look somewhere for forgiveness if such temptations as these were often thrown in the way. It is the first watermelon the writer ever felt he thoroughly enjoyed. It was a very large specimen, four feet three inches round one way, and two feet seven inches in girth. Cutting it across the whole was a dense mass of deep scarlet pulp, with the exception of a half-inch of green. With a large circle of admirers of this specimen, the writer was compelled to admit that "there is something in a watermelon after all."—Ed. G. M.]

TOMATO DISEASE.—"A. A.," Newburgh, N. Y., writes: "I send to your address to day, by mail,

a small box containing three tomatoes (Acme), which you will see are blighted by something which is beyond our understanding, and if you will be kind enough to give us your opinion about it, you will greatly oblige a number of the readers of the GARDENER'S MONTHLY in this county, as the disease is quite common here. I had five varieties of tomatoes planted in rows four feet apart, and none are affected but the Acme. We have had a very dry summer which might affect that variety."

[The disease here referred to has been very serious in many quarters. It is not confined to any one variety. So far as we have seen, it is manifested just before maturity. It appears as a dark, rather hard spot, and soon after decay spreads over the whole fruit. In the earlier stages it may be noted by a change in the tint,

from the natural dark green to a light green. If cut across at this time, the mycelium, or thread of the fungus, may be readily seen through a pocket lens. We have no knowledge, as yet, of the genus or species the fungus belongs to.—Ed. G. M.]

YUCCA FIBRE FOR TYING PURPOSES.—Mr. J. B. Garber, Columbia, Pa., says: "Your Texas correspondent is right as to the value, as a tying material, of the Yuccas—page 259. For many years I have been using the leaves of the *Yucca filamentosa* to tie up the young shoots of grape vines, dahlias, tomatoes, and any other plants requiring to be tied to stakes or trellis, and I would not know of any substitute so strong and convenient. The variety *Yucca gloriosa* is not sufficiently hardy to stand our clime, but the *filamentosa* answers every purpose."

FORESTRY.

EDITORIAL NOTES.

PLANTING SEEDLINGS FROM THE FOREST.—Mr. George May Powell makes the very good suggestion, that sprouting acorns or nuts from the forest may be planted with no more trouble than the setting out of cabbage plants, and the training of the young to look after the growth of these "forest babies," would be one of the best means of inducing the incoming generation to take an interest in forestry.

GRADUATES IN ARBORICULTURE.—Eleven students received diplomas in the School of Arboriculture at Paris, under M. Dubreuil, at the summer examination.

SUCCESION OF FOREST GROWTHS.—There is a prevailing impression that when a forest is cut or burnt down, it is succeeded by trees of a different character. This is certainly the case in many instances, but the reverse could perhaps bring forward as many illustrations. During a recent trip through parts of the Province of Quebec it was interesting to note the immense number of young sugar maples coming up under the shadow of aged trees. The sugar maple is a much more common tree than the writer had

supposed. There are immense tracts covered almost wholly by these trees. Under them the seedlings are often so thick that one might imagine a rabbit could scarcely force its way through. In all our forest experience in the United States we do not remember any kind of tree which produces its seedlings in such numbers, and so thickly together under the parent tree as do the Canadian sugar maples.

ROADSIDE FORESTRY.—Those who think it worth while to encourage street tree-planting as an incident in forestry should at least endeavor to educate the street tree-planter what to choose. The streets in Canadian towns follow the poor example of many American ones, and plant little else but the silver maple. There will be a fall in the price of tooth-picks if this sort of tree continues in the favor of planters. Montreal varies the planting acceptably by using a good deal of ash, and in Quebec some lindens are used.

FORESTRY IN CANADA.—The forestry convention which met in Montreal the day before the meeting of the American Association for the Advancement of Science, was a remarkably successful meeting. The two bodies were

merged, as suggested by Dr. Warder, at Rochester, and the members of each worked together for the common good. The Lieutenant Governor of Quebec honored the meeting with his presence, and Dr. Warder, Dr. Loring and other eminent gentlemen made addresses. Mr. Little, the Vice President, worked enthusiastically to get up a good meeting, and the great success which followed must have been very gratifying to him. It was the general impression among the people of Montreal that this meeting would do more to awake an interest in forestry in Canada than anything that had occurred for some time. We are surprised that there has been so much lethargy hitherto; for much as we have known that the prosperity of Canada depended a great deal on her timber interests, we had no idea of the very great extent to which this is true. In Quebec the writer found, by inquiry amongst the business men, almost the universal answer that timber was at the bottom of the most important interests in that city. We found that in a large number of cases where timber was cut away, the land was not cleared away for agricultural purposes, but was suffered to grow up again into timber. But much that was growing was useless stuff, and there was the same objection we see everywhere, namely, that an immense amount of dead rubbish abounded everywhere, making excellent material for some future forest fire. In fact, there is so much ignorance prevailing about the proper management of forests, both as to caring for second growths and the building up of absolutely new ones, that especially in Canada where there is so much in forestry under her leading industries, that a forestry convention ought to find good

material for a meeting there every year, as well as for an exceptional one like this.

FORESTRY PLANTING.—Many directions are given to people who know little about how to plant forests. The best advice is to put the matter in charge of some one who knows what he is doing. Douglas & Sons, of Waukegan, are doing good work for forestry by planting and caring for the trees for several years. According to the *Country Gentleman*:

"Dr. Warder says that H. H. Hunnewell, of Boston, has contracted with Douglas & Sons, of Waukegan, the well-known nurserymen, for the planting of several hundred acres with the hardy Western catalpa, the soil being first broken up and planted with grain for one year or more before setting out the catalpas. They are placed four feet apart, requiring nearly 3 000 for an acre, and Mr. Douglas agrees to furnish the trees, plant and tend them until old enough to take care of themselves, at the rate of three cents each. This would be eighty dollars an acre, probably one of the most profitable investments, on the part of the land owner, that can be made."

Mr. Hunnewell has set an excellent example as the best method of procedure in forest planting.

SPARK ARRESTORS.—Recently, in reply to a correspondent, it was stated that no spark arrestors on railroad engines had been successful. If the sparks were arrested the draft was destroyed. A recent Boston paper, referring to the paragraph in the *GARDENER'S MONTHLY*, says that there is now an invention which promises absolute success. The Old Colony Railroad Company is putting it on all their new locomotives, and on all the old ones as they come to the shop. The arrangement costs \$250 for each appliance, but it will be cheaper than forest fires.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

BOTANICAL NOTES FROM NEW JERSEY.

BY MR. FRANK L. BASSETT, HAMMONTON.

As the genus *Sabbatia* is called annual or biennial in our text books, I would say that I have specimens of *S. lanceolata* with the remains of

last year's flower growth, this year's flowers, and crowns at the base for next year's flowers; also, *S. chlorides* with last year's flower stem and this year's flowers.

I notice, also, that *Amphicarpum Purshii* is called by Wood perennial, and by Gray, annual or biennial. I have specimens with both kinds of flowers mature, and the seed from which it

grew attached, which would point to its annual nature.

DAMSON DYE vs. DAMSON PIE.

BY WM. T. HARDING, MOUNT HOLLY, N. J.

Desirous of seeing one of the "model farms" of England, I secured an introduction to one of the most enterprising farmers in Staffordshire, who, after a brief glance at my credentials, cordially assured me he was at my service for the occasion. The fame of the farm led me to seek an interview with the intelligent agriculturist, who so successfully managed it. It soon became obvious to the writer's preceptions of such matters that the noted granger possessed a thorough, practical and scientific knowledge of all things bucolic.

He was an adept at floriculture, too, as was evident from the gay parterres which adorned his well-kept grounds. And in his business pursuits, pleasure and profit seemed mutually united in making life enjoyable.

Learning that I was on a visit from the United States, our conversation soon drifted to matters agricultural and horticultural, on this side the sea, as well as the social, moral and political features of the country. Thus pleasantly led along, we inspected his well tilled fields—some two hundred acres in extent, where everything indicated that thrifty farming was worth following. The modern implements of husbandry, all bright and clean, with the excellent machinery of both American and English makers, adapted for all agricultural purposes, were ample and complete. The live stock, also, were of choice breeds, and their excellent condition, showed they were well cared for, and well might the owner feel proud of them.

After viewing the farm, where all and every thing seemed to flourish, we returned to the pleasant surroundings of the comfortable domicile, and looked over the tidy, handsome greenhouse and vinery, with a number of pits and frames, which were highly creditable to the owner. The soft mossy lawn, more elastic than any velvet carpet could possibly be, was as verdant and smooth, as ever footsteps pressed, and over which, we passed to the orchard—which was enclosed within a remarkably fine close clipped holly hedge, ten feet high. The apple trees, I was informed, when kept free from the American blight (as that is the cognomen by which the pest is known), bore tolerable crops;

but nothing like the beautiful fruit he frequently saw in the markets sent from this country. His remedy for the destruction of the insect nuisance was linseed oil, put on with a painter's brush all over the trees, at least once a year, or whenever seen to be infested. The pear, plum and cherry trees, with quinces, medlars and filberts, I was assured, bore abundantly, as did also the gooseberries, the huge, luscious English kinds, currants, raspberries and strawberries in the vegetable garden; while the peach, nectarine, fig and apricot trees, trained on the garden walls, were as fruitful as need be.

I noticed an additional orchard of damsons, several acres in extent, that had recently been planted, and to my query, Why so many? was informed they were not intended for culinary purposes, but to supply a new demand of the arts, and for which they were immensely profitable.

Now, here was something new under the sun, as the sequel will presently show. As I had hitherto looked upon the domestic damson as one of the most useful and palatable fruits eaten, either in a natural state, preserved or otherwise prepared, I felt astonished at the assertion. As damson pudding and pie had been one of the gustatory delights of my youthful days, and for which I sometimes feel a yearning now, I was at a loss to know what other art, save that of mastication, could find a use for damsons. But good reader, be not amazed when the secret is divulged, as it was told to me, they were intended for dyes instead of pies. "The fact is this," said my friend, "I last year sold nearly all my damson crop, which realized £50, or \$250, to parties who, in the season, go about the country buying up all the ripe fruit they can find for dyeing purposes."

And so it seems the discovery has been made that damson dye gives an indelible rich color to textile fabrics, and for such uses is highly valued.

Accepting an invitation to lunch, I noticed several large, well-filled bookcases, and on the table of a very cosy sitting-room lay some of the leading magazines of the day, with a number of newspapers, conspicuous among which was *The Gardener's Chronicle*, *The Garden*, *Agricultural Gazette*, &c., all of which indicated their intentions were to keep pace with the times.

There seems to have sprung up a new race of agriculturists in England who have faith in "book-learning," and admit that brains, as well as muscles, are of use on the farm, and which, I opine, is as true of that country as of this.

VARIETIES REPRODUCING THEMSELVES.

BY MISS M. M. B. RODMAN, WASHINGTON, N. C.

I find in my box of seedling roses, of last autumn's sowing, a rose so exactly like Laurette that one might suppose they were taken from the same bush. What seems peculiar about this is that, Laurette being a double rose, never seeds. I have several bushes of this rose growing near a Safrano, which seeds freely, and presume the solution of the mystery is that the "little busy bee" knows how to capture and distribute pollen no matter how securely it may seem to be hidden away. Still it seems strange that one rose should so exactly reproduce another.

Should you deem any of my notes worthy of publication, I shall esteem it an honor to see them in the pages of the GARDENER'S MONTHLY.

[It is well known in hybridizing, that the female parent may be exactly reproduced though under the influence of pollen very unlike its own. This was proved especially by the experience of Mr. Francis Parkman among lilies; *Lilium Parkmanni* being the only remarkable departure from the female type. There is probably no reason why the inverse might not be true—that is the female wholly reproducing the male form, and this experience with the rose points that way.—Ed. G. M.]

NOTES FROM THE WEST.

BY IROQUOIS.

It is always a mystery to those familiar with the native flora of our fields and forests why so few of our common plants, shrubs, trees, &c., are utilized by the American landscape gardener in his efforts to procure suitable material to beautify our lawns and the public parks, especially as there seems to be actually nothing in the market, in many instances, exactly appropriate for many a contemplated improvement. Probably the reason best assigned for this omission is contained in the two words, too common. Be this as it may, the truth remains indisputable, that many of our native plants, shrubs, &c., are just as suitable and effective, for service in many a desirable place on the lawn, as though they had traversed the broad ocean, possessed an almost unpronounceable name, and commanded a fabulous price in the market for their possession. Of course all our native plants are not desirable for cultivation; in fact some are a source of great annoyance to the cultivator by

taking entire possession of the ground they occupy, *i. e.*, from their wonderful power of increasing both by suckers from the roots, and also by their stems and prostrate branches that reach the ground, taking root and spreading with great rapidity to the exclusion of everything else. Others are quite showy and effective, but are such great feeders they soon absorb all the strength and nutriment from the ground. These, by common consent, have received the popular name of weeds. However, it would be very difficult for any one to define, with any degree of accuracy, the exact limit of the term weeds.

In wandering through the fields and forests in autumn, after the highly-colored fruit and foliage of nearly all our ornamental vegetation has disappeared, nothing seems more attractive than the shrubs so common in many parts of the country, and withal so familiar by name to most of our people, under the popular name of wax work or bitter-sweet, *Celastrus scandens*, and *Waa-hoo*, or strawberry bush, *Euonymus Americanus*, and *E. atropurpureus*. Both the bitter-sweet and strawberry bush belong to the same natural order of plants, for which Linnæus adopted the old Greek misname of *Celastraceæ*. These three species, together with three other varieties or sub-species, are the only representatives of this order of plants to be found in the northern portion of the United States, although the order is represented in the United States, principally South, by eight genera, sixteen species and three varieties, and about forty genera and nearly three hundred species have been described by botanists and travelers from all parts of the world, all, or nearly all of which are indigenous to the temperate zones.

Perhaps no other hardy native vine of the United States is so widely known by name, or so completely interwoven in the popular romance of the new world, by popular writers of fiction, as the bitter-sweet, or, as it is sometimes called, the wax work, and still its identification is almost unknown to most of our people. To fully realize its grandeur it must be seen in its native *habitat* in autumn, creeping along the neglected fence rows and thickets, or climbing and twisting among the branches of a low-growing tree or shrub, often from thirty to forty, or even more, feet in length, with its entire, oblong, pointed and thin leaves and highly ornamental fruit hanging from the numerous little terminal fruit spurs or short branches along its entire length.

Sometimes we find two or three stems growing erect from the same root crown, and supporting themselves by the united stems twisting around each other, like the strands of a rope, for mutual support, for ten to fifteen feet and forming a most curious object. The flowers are produced in June, are greenish white, very small and inconspicuous; indeed they would not usually be noticed by a casual observer without attention being called to their presence, but they are soon followed by the large clusters of fruit, each one (fruit) of which is round, or indefinitely three-sided, about the size of peas, and enclosed in a thin, horny shell, or capsule, of a bright, orange-red color, which, when ripe (in September), burst from the apex into three parts, and turning back, remain attached to the stem, and reveal a bright, scarlet, soft, fleshy or waxy pulp, (aril), which hang to the vine during autumn and winter, or at least would remain there if the birds (some of which are very fond of them) did not devour them with such avidity.

Now let us imagine this native vine planted in clusters so as to give it more of a dense appearance than it usually presents in its uncultivated condition, and trained over a trellis; or what is still better, planted and trained to creep around and through the branches of a low-growing tree, particularly a native thorn or red haw, *Cratægus*,—especially the evergreen variety, if it can be procured—and you certainly have one of the most ornamental, hardy vines to be procured from the scant list, that will survive the occasional severe winters of the temperate zone. Of course further south the list of hardy vines for that latitude would be more extended, but probably few plants would be as ornamental during winter even there as this one. Its bright, orange and scarlet fruit, with its singular flower shape pods turned back when ripe, would be a very attractive feature on the lawn, and the class of birds that usually eat the fruit would not be liable to molest it when planted upon a lawn, and would in a great measure neutralize the apparent desolation during the seemingly lifeless (to vegetable forms) winter months of a flowerless and leafless lawn of the temperate zone.

A fit companion for the bitter-sweet, to plant on the lawn, and the only other representative of this order of plants in the northern part of the United States, is the Waa-hoo or strawberry bush, *Euonymus*, which also shares the same neglect at the hands of the landscape gardener,

and is nearly equally as unknown to the most of our people except by name. It is occasionally seen in cultivation in America, and when properly cared for makes a most favorable impression, even when growing side by side with more pretentious and costly shrubs. By reference to standard botanies we find scientific botanists make three native species and three other varieties of the *Euonymus* found in the United States all very similar in their general character, and all equally desirable for planting on the lawn with other shrubs, differing as they do in so many important features. If we go into the fields and study them in their native *habitat*, we shall find them growing in rich, loamy or peaty soil, usually quite moist, and that they are a slender, low-growing shrub, with very peculiar four-sided or nearly square branches; that while some varieties only grow from one to two feet high, others often reach the height of fifteen or eighteen feet, with more or less oblong, shining (Nuttall says opaque) green leaves, which in autumn assume a most brilliant, bronzy-crimson color. The flowers are small and insignificant, of a dull, bronzy-green or purplish color, and borne in small clusters in June (usually three or more together) from a long stem at the axils of the leaves. Like the bitter-sweet the fruit of the *Euonymus* is the great object of interest, and ripening in fall (October) also remains hanging to the branches all winter. It is deeply three-lobed in *E. Americanus* and its varieties, but four-lobed in *E. atropurpureus*, and is covered with a thin, hard, bony pod, or capsule, usually of a bright crimson or orange-red color, while they are often seen (especially under cultivation) of all the shades of red to a creamy white. These pods bursting open from the apex along the three or four ridges of the lobes, when the fruit is ripe, and turning back remain attached to the stem, thus revealing a bright, scarlet, pulpy meat (fruit), enclosing the seed. Unlike the bitter-sweet, the fruit is not greedily devoured by birds; indeed it is usually credited with containing a poisonous acid very destructive to stock, which Prof. Gray tells us *Tournefort* has aptly turned to good account by ironically giving the genus a name which, in the original Greek, signifies "good food."

Although the *Euonymus* makes a very pleasing object with its highly ornamental, bell like fruit hanging from the numerous branches during winter, when planted on the lawn, it is still more attractive when planted in thickets or

groups of other shrubs, a portion of which retain their foliage the year round, *i. e.* evergreens. There can be no doubt of the utility of many of our native shrubs and vines being eminently adapted for service on our lawns and public parks, and profiting by the experience of our most successful cultivators, it is to be hoped that more use will be made, in the near future, of these worthy plants.

EDITORIAL NOTES.

SEX OF THE AILANTUS.—A note in the *American Agriculturist*, probably from the pen of Prof. Thurber, than whom there can be no better authority, calls attention to the fact that there are three kinds of *Ailantus*—the male, which is fetid for the few days it is in flower, the female, which is inodorous, and the hermaphrodite, which, though perfecting seeds as the female does, has also disagreeable flowers. The purely female is the form which those should raise from root cuttings who find fault with the odor of the others.

THE MOLE.—This creature is often discussed at horticultural meetings. The question usually turns on the inquiry whether it is carnivorous or herbivorous. To most cultivators the greater question is the throwing up of the earth. This cannot be endured no matter what it eats; and discussions on the best kind of mole traps will still be in order.

THE ROSE WITHOUT THORNS.—In a feeble sort of apology for just a little wickedness in human beings, a French writer assures his readers that "a rose without thorns, is a rose without fragrance." Just now we do not feel sure of our position, but are inclined to regard the crimson Boursault as a completely thornless and yet very fragrant rose. What do our readers say? We are not inclined to have the delightful rose made to cover moral delinquencies without strong evidence of its dereliction.

COAL AND LIGNITE IN MEXICO.—We notice by the bulletin of the agricultural society of Mexico that companies are being formed to develop the carboniferous resources of Mexico.

TOMATO DISEASE IN KENTUCKY.—A correspondent of the *Farmers' Home Journal* notes the presence of a serious disease in the tomato near Louisville. "The leaves and stem of the tomato

blight and fall from the main vine. They begin at the bottom of the plant to turn yellow, then brown and black, and fall lifeless, leaving the stalk covered with finely-grown fruit without any shade to cover them from the sun."

We have not seen this peculiar form of disease. That which we have had reference to recently affected only the fruit. For many years the plant has been subjected to an attack of a fungus similar, and probably the same, with the verbena rust. The description above looks as if the trouble might arise from some stem borer, though no such insect is known at present to be engaged in such work. Have the stalks been examined?

SCRAPS AND QUERIES.

TUBULAR-RAYED RUDBECKIA.—I. H. Slocombe, New Haven, writes: "I have sent by mail two flowers of *Rudbeckia hirta*, as found growing wild. This is the second season it has produced such flowers as sent. I have never seen anything like it, and am going to cultivate it."

[The ray flowers are tubular instead of strap-shaped. The ox-eye daisy has been found that way, and the *Gaillardia* has several pretty varieties of the same character. It is the first notice we know of in *Rudbeckia*. It will make a pretty border plant.—Ed. G. M.]

POISONOUS KALMIA.—"H." writes: "I have been looking over some old numbers of the *HORTICULTURIST*, and been reading up the various articles signed 'Thomas Meehan.' One on page 169, volume for 1856, is only signed T. M., and in it I see you do not agree with the opinion (or at least did not then) that the leaves of *Kalmia latifolia* are poisonous to animals. I firmly believe in it, but shall not trouble you with my reasons until I know that you are still a doubter."

[This subject has been gone over pretty well lately, but still we are not convinced, simply because we do not regard the evidence warrants the belief that it is. It may be poisonous, but the fact that some sheep have died after eating it, does not prove it. Some people have died after eating oysters, and it is said King Henry VIII. died after eating strawberries.

If there are any poisonous properties in *Kalmia*, chemistry ought to show it. In former correspondence we suggested that it would be much better to have a chemical analysis made of the leaves than to have so many letters with our

correspondents' opinions, or even our own. Mr. W. F. Bassett was sensible enough to see the point, and sent a good bundle to the Illinois Industrial University. We have the following letter before us:

CHAMPAIGN, ILL., Aug. 7, 1882.

MY DEAR SIR:—I just notice that a communication addressed to you last March, about *Kalmia* leaves, was not mailed. A chemical analysis was made of the leaves you kindly sent in February, but no poisonous substance was found.

Regretting the delay, I am

Very truly yours,

T. J. BURRILL.

We must, therefore, still express the opinion that we have no more evidence that the *Kalmia* is poisonous now, than had "T. M." a quarter of a century ago.—Ed. G. M.]

CICADA SEPTEDECIM.—"C." says: "In the last number of the GARDENER'S MONTHLY, Prof. Riley takes you to task for erring in the orthography Septem-decim. He says you should have written it Septen-decim. I wonder you did not think to say that he himself uses the same orthography he charges you as in error with. At

page 479, 1881, *American Naturalist*, is a chapter presumably from his pen, at least under his editorial supervision, in which Septem-decim occurs five times, and Septen-decim not once."

[The GARDENER'S MONTHLY did not overlook the paragraph referred to in the *Naturalist*, for indeed the one criticised by Prof. Riley was made from the chapter referred to. But we believe in being generous to correspondents, and were perfectly willing to let Prof. Riley's criticisms go without comment so long as they communicated valuable information, which was the case in the article he kindly furnished us.—Ed. G. M.]

PAPER MULBERRY.—According to the following note from Mr. J. B. Garber, it seems the paper mulberry has, to some extent, become naturalized in some places in the South:

"I was under the impression that the paper mulberry was a native of Texas, as my friend at New Orleans found the tree growing wild in the forest, and not knowing what kind of a tree it was, called it "fig mulberry," supposing it to be a cross of the mulberry on the fig."

LITERATURE, TRAVELS AND PERSONAL NOTES.

RESIDENCE OF W. B. DINSMORE, KINGS- TON, N. Y.

BY VALENTINE BOURGEVIN.

(Concluded from page 281.)

From here I went into a long range of houses in the rear of the tropicals to admire the large rose plantations, which showed thrifty, healthy bushes and buds enough to supply a city. Numerous large carnations full of flowers, bouvardias, violets, and a large number of echeverias, everything in perfect condition. On account of the heat we wandered in a lovely path along the bank of the river, all shaded, inviting seats in temples, from where we admired these charming panoramas spread so gloriously before the eye. These temples are located where views are most interesting. At the end of this walk is a grand opening, where nothing obstructs the vision over a beautiful lawn from

the residence to the river, presenting a magnificent picture; and from the river the mansion shows itself in its full splendor. The river is ornamented with a substantial wall on the coping of which, for about five hundred feet in length, a large collection of aged century plants, in painted tubs, are placed at short distances, and give the place a royal appearance. Passing down through steps in the wall, we took great pleasure in walking along the beautiful beach in front. Passing a little further on, we came to a landing in front of which lay a magnificent yacht, appropriately named the Locust, ready for pleasure trips. At this point an engine house, bathing houses, sail boats and small boats are ornaments of this property. While returning by the same route and enjoying this lovely walk we were fanned by a delightful breeze from the river, and splendidly entertained by Mr. Emerson, who gave us interesting recitations on "Mark Twain."

We were nicely cooled off and ready to proceed with our further inspection.

From here we walked towards the elegant mansion, passing through a grove of white locust which when in bloom spread its pleasing and nourishing perfumes wide over the country and furnished the name (Locust Grove) to this magnificent home. The celebrated Hudson river runs in front of this elevation with its steamers, all sorts of sailing vessels and pleasure boats which go gliding charmingly along the whole scene, and add to the embellishment of this location. All this looks as if it belonged to the property, and represents these superb country seats still more perfectly; replacing a thousandfold the artificial ponds which are generally connected with these parks. The views up and down the river, almost endless, show cities and villages with their church steeples, buildings, castles, farms, fruit growing cultivations and steadily improving landscapes. Arriving at the mansion we were fairly dazzled with the beauty of this luxuriant edifice, of this handsomest residence of the Hudson and exquisite model of modern architecture. And it is said that the inside, furnished with all comforts, ornaments and works of art which the world offers and money buys, surpasses by far in preciousness the enormous cost of this truly royal palace. A lady deeply interested in a book, sitting on the piazza, some youths, the pictures of health, taking a ride in a stylish little wagon, drawn by a cunning little pony, and who by their laughing faces appeared to be perfectly happy, were objects that delighted the beholder. The old gentleman holding an umbrella over his head and walking over the grounds, had his eyes all over. All these were models for the genius of a painter. The pleasing sound of a piano struck our ear, and showed that all the arts are cultivated and are at home here. Flowers, music, paintings are displayed, both outside and inside, and the whole is a successful illustration of a lovely piece of poesy. The floral decorations in front of the house surpass everything. They are like a magnificent exhibition. On both sides of the steps in front, the whole length of the piazza, crotons are displaying their beautifully marked, shining and singularly formed leaves. Right and left large, elegant vases, tastefully filled with suitable plants and vines (taking nearly a hundred to each vase) are placed like guards on each side, and festoons of ampelopsis hang from tree to tree. Beyond the wide place in front of the

house is an apparently endless green lawn, ornamented with numbers of shade and ornamental trees, evergreens and flowering shrubs tastefully and scientifically planted. It is a splendid panorama, like a paradise. On the border of this is a row of precious Japan and Chinese vases, filled with all sorts of showy plants, the highest opposite the entrance of the door lowering to both ends and forming an arch where other large vases were placed. The length of this exhibition-like decoration was at least three hundred feet. The newest varieties of coleus are specially beautiful, arranged in tubs and vases, and show their color more distinct and exquisite than any time heretofore; and the hydrangeas, with their numerous pink, white and blue globular flowers are adding considerably to this great decoration. In fact, in looking over the entire plantation, the proper culture, together with the richness of the soil, renders this plantation as complete and recent in effect as if it had been planted three months ago. The same superior style prevails harmoniously all over.

We followed along the carriage road when Mr. E. called attention to the rare ornamental trees. Perfectly formed evergreens and beautiful flowering shrubs planted in groups and singly were skillfully located. We had to go from one side to the other to admire, and not let any of these beauties escape. The new Japan maples with their peculiarly formed leaves and singular color attract special attention. Groups of rarest evergreens, the centre highest, show like one tree. Beautiful shrubs change off harmoniously, and every novelty which will thrive in this climate seems to be in this collection. Three gigantic black-walnut trees under whose wide spreading limbs many have enjoyed the pleasing shade, are land-marks and have a history for themselves. Nature has here her own language and scripture. A very old apple tree with its branches to the ground, and running quite a distance along from the tree, forming a group for itself of large dimensions is a great curiosity and a perfect beauty when in bloom. These old settlers attract just as much attention as their proud foreign neighbors growing alongside of them.

Here we arrived at the bridge leading to the carriage road. By turning to the starting point we observed artistic single statues and allegorical groups of bronze castings suitably located and so full of expression that they seem to talk,

and one comprehends at once their signification. They seem as if animated with living souls. One group represents a struggle with a panther. The fearful expression of the face, all the nerves and muscles strained at the dangerous position of the victim, the desperate fight he makes and the faithful dog taking hold, give hope for his relief. Another group reveals two graceful females entrusting their secrets to each other, manifesting it by holding the finger to the lips. Still others represent pictures from mythology and horticulture representations.

Passing by we came to the carriage house and horse stables where one can find all sorts of comfortable vehicles and the noblest bred horses in a building which cannot easily be excelled. Mr. Dinsmore has help enough for everything, and sees himself that everything is punctually and properly performed. Consequently order, neatness and cleanliness prevail all over. Every considerable improvement or embellishment favoring this remarkable home is carried out after counsel with competent and approved judges. Mr. Dinsmore is willing to open his purse generously and deserves public recognition as a protector of art. He is pleased to have every visitor enjoy his famous park.

Arriving at the limit of the park, from whence we started, we thanked Mr. E. for his kindness in piloting us around and giving all possible information. All I have to say is, that he is beyond question the most superior gardener Mr. D. ever engaged, and that under his care and management for the last twelve years, it has come to this flourishing condition. Mr. E. is an active artist, and is devoted to the art with soul and body at all times. He has no other desire than to fulfill his mission to the satisfaction of his employer. Passing through the barnyard we saw full-blooded bulls led by a ring through the nose to the watering trough. Inside the barns were some of the finest heifers, like deer, with their friendly faces and black noses, and a large herd of the most beautiful Alderney cows home in their night quarters. We spent a delightful day, and talked over these scenes all the way home and many times afterwards.

THE DECIMAL SYSTEM.

BY D. W. ADAMS, WAUKON, IOWA.

Not long ago I asked the GARDENER'S MONTHLY "Is it necessary for the advancement of science

that the measures of fruits as well as the name of flowers should be given in an 'unknown tongue?'"

In reply (page 255) the editor evades my question and flies wildly off to advocate the decimal system of weights and measures, the wisdom of which I had not questioned. Then he expressed surprise, that 49,000,000 people have got no further towards decimal measures than their great grandfathers. Then returning to the "unknown tongue," he gives the meaning of these French words but not the pronunciation. If 3,000,000 people read this article and thus become versed in French decimals, there will still remain 48,000,000 unread Americans.

Then he wishes to "convert the master of the National Grange." The National Grange some years ago put the prefix "past" to my title. I immediately "converted" and decided thenceforth to use the "unmeasurably superior" French decimal system. I called a fair sample of the 49,000,000 whom I had employed to chop cordwood. I told him to go to the hardware store and get a duokilogramme axe with a unimetre Caryatomentosa helve, then go to the timber lot and cut a hectimetre of populustremuloides and Quercusmacrocarpa. I suggested that he take along a couple of litres of aqua pura.

The look of bewilderment and consternation on the man's face was indescribable. I could not determine whether he considered me most lunatic or idiot. At length, however, he managed to tell me in very simple English that he did not comprehend my meaning. I think he said "what?"

Fortified by the example of the GARDENER'S MONTHLY I promptly replied that I was surprised that he didn't know any more than his great-grandfather, and then taking the advice of the G. M., I commenced a "lecture" on the "unmeasurably superior" French decimal system. I told him the meaning of Ki-lôg'-râm-nê' and héc-tôl'-i-trê'. If he follows my pronunciation in the presence of such scientists as Sullivan and Tug Wilson, I tremble for his "potato trap"—scientific term for mouth.

I wound up with the standard knockdown scientific argument about the vagueness of common English names for trees and flowers and showed him the confusion, uncertainty and danger of telling him to chop a burr oak instead of Quercusmacrocarpa. I flatter myself, I left a good impression on his mind, similar to that of a good Scotch lady who said the new preacher

was a wonderful learned man—why “bless you I couldn’t understand a word he said.”

Now, returning to our grandfathers, the plain facts are that when they wisely decided on the decimal system for recoinage money, they had enough good hard common sense to choose short names for the denominations such as common people could read and pronounce.

In mill, cent, dime, there is to be sure a hint of Latin, thousandths, hundredths and tenths, but our grand old common sense ancestors cut down and anglo-saxonized them to monosyllables which we can pronounce. Now suppose instead they had started with dollar, then instead of dime, cent and mill, they had said, decemfiddollar, centidollar and millidollar, and instead of eagle and double eagle had said decem-dollar and duodecem-dollar. We would to-day look back upon them as a super-literary dilettant leatherheaded lot of old blockheads to attempt to saddle such a mess of foreign polysyllables upon a busy people, and we would probably be still wrestling with pounds, shillings and pence.

Now if the servants and legislators of to-day were possessed of the clean-cut practical common sense of our grandfathers, and would abandon *Ki-lög-räm-mē*, *hēc-töl-i-trē* and *cē-tīm-i-tre’* (are these correct?) and all such foreign polysyllabic nonsense, and adopt a decimal system of weights and measures with short names that we common plowjoggers can pronounce, then the GARDENER’S MONTHLY can cease its efforts to “convert the master of the National Grange,” and it will not be necessary to set his lecturers to work in the interests of this reform. But now, bad as it actually is for school children to “flounder” through gills, pints and quarts, for a few brief school days, it is nothing compared to the everyday use of those interminable French polysyllables for threescore years and ten.

The American merchants, manufacturers, rail-roads, farmers and others are eminently a practical go-ahead people with abundance of good business common sense, and they will never willingly consent all their lives to pronounce and write those French polysyllabical monstrosities.

[The subject is one of great importance, and Mr. Adams’ letter will serve to draw attention to it. As the GARDENER’S MONTHLY understands Mr. Adams, he is in favor of the French decimal system, but objects to the French names. The way is open for some one to impose convenient

English names for the French ones as was done with dollars and cents. But as we have no English equivalents, and these terms are now of continual occurrence in English literature, it seems best that readers should familiarize themselves with the few terms or go to their dictionaries every time they see them, rather than that the newspaper should be called on to make the exact calculations every time they are used.

There is however much to be said on both sides and we are quite willing to confess since Mr. Adams took us to task, that it would have been better had we made the calculation for the reader than have copied the term as used in our extract.—Ed. G. M.]

EDITORIAL NOTES.

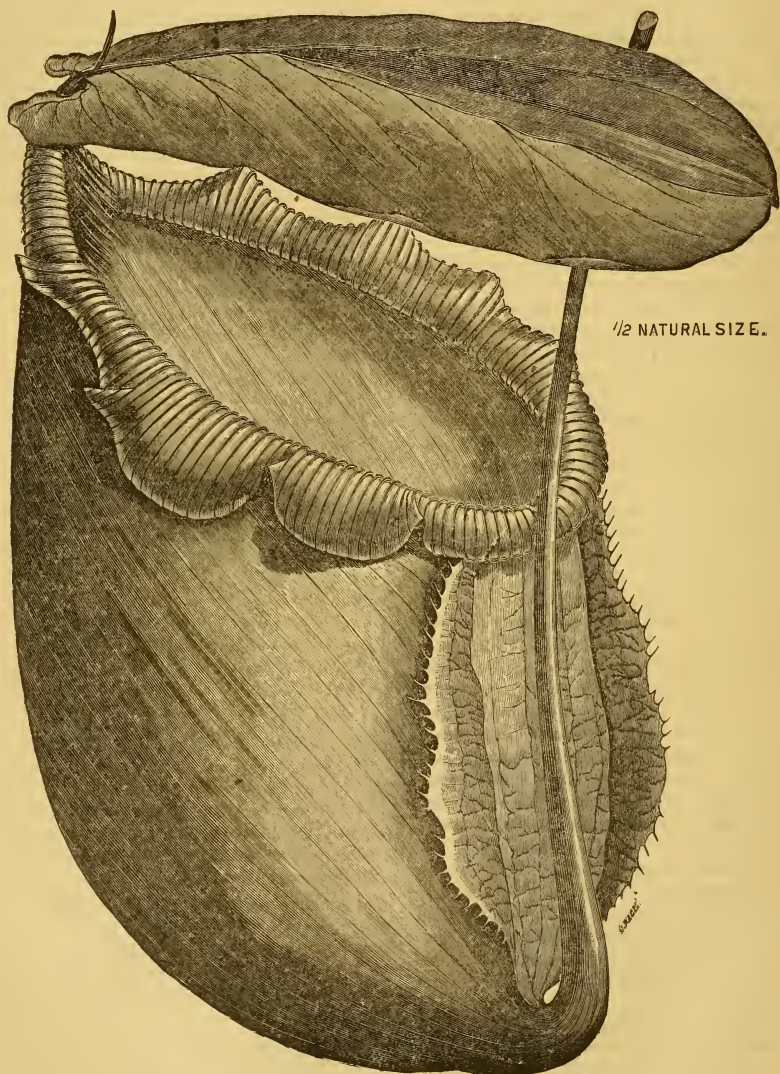
MR. WARREN H. MANNING.—In the last issue of the magazine the chapter on Herbaceous plants was credited to Mr. Wm. Sutherland instead of to Mr. W. H. Manning. Mr. Manning is the son of Mr. Jacob W. Manning of the Reading Nurseries near Boston, and one of the rising race of intelligent and worthy young men, of whom the generation now passing away may well be proud. Besides taking a pleasure in his respected father’s business, he is ardently devoted to Botanical studies and other scientific pursuits, and is already an honored member of The American Association for the Advancement of Science. We very much regret that the paper of one so worthy of credit, should have been misappropriated by an oversight of our own.

MAURICE VILMORIN.—The many friends made by this highly intelligent gentleman during his tour through America, will be glad to learn that in testimony of the value to France of his botanical and horticultural labor, he has recently received from his government the decoration of the Legion of Honor.

ESTATE OF THE LATE CHARLES DARWIN.—Mr. Darwin’s personal property proves to be about three-quarters of a million of dollars. By his will Prof. Huxley has \$5000 and Sir Joseph Hooker \$5000. The balance of his estate is divided between his wife, five sons, and two daughters.

NEPENTHES RAJAH.—The curious family of pitcher plants known under the name of *ne-penthes* is among the anomalies of the vegetable kingdom. It has no known relations. Some botanists have thought they saw some connec-

tion between them and Euphorbias. but this is | Aristolochia; but even this is more from the
acknowledged to be but a distant connection at | structure of the plant than from any similarity



1/2 NATURAL SIZE.

NEPENTHES RAJAH.

best. Others again have supposed there was | in the floral organs, on which relationships are
some affinity between them and the curious | more commonly supposed to depend.

All of these considerations have value in connection with the question of the origin of species. If one genus has grown out of, or proceeded from another or others, there must have been a severe destruction of intermediate forms to leave this singular one standing so very much alone. It may be a very old family. There may have been forms branching off from this—younger species—and these have been swept away, leaving the parents still to live longer; or these plants may be of a modern origin, of which the whole ancestry is lost. Probably most biologists would be inclined to the latter view—in which case we might inquire what it is which has given these plants the power to maintain an existence as against the ancestors which have been destroyed. Unless we knew exactly what these ancestors were, and what powers they possessed, it would not be possible to decide positively; but, in the view that these are modern introductions, we may suppose that the ancestors were much like other plants, which had not the pitcher-like appendages to the leaves which these plants possess. They are swamp plants, growing in the warmer parts of the East Indies and China, and what possible use they are to the plants, any more than pitchers would be to any other plants, no one has been able to suggest. The water in them is rather a tax on the energies of the plant. In our American pitcher plants the liquid secretion has often numerous insects which seem to have been drowned therein, and these insects seem to aid in the nutrition of the plant. But no one appears to have noted that the *Nepenthes* catch insects, and Darwin makes no mention of them among his "Insectivorous Plants."

Again, among all the various forms of *Nepenthes*, what is there in one form that should have called it into existence as a point of advantage over the forms which characterize its brethren? In this particular species, *Nepenthes Rajah*, the pitchers are enormous. The drawing shows one of only half the natural size. It is six inches in diameter and twelve inches long. Some species have pitchers not a quarter of this size, and yet for all we see they get along just as well as that with this enormous pitcher, requiring such an enormous tax on the plant's resources to draw water up from the root, and to sustain the weight. Even the lid is ten inches long and eight broad, and one might say performed some good work in covering the mouth of the pitcher, and preventing a too rapid evaporation; but

there are other species, with small and nearly erect lids, and these again seem to get along just as well in the "struggle for life." Besides this there are innumerable other points in which they vary from one another; and yet no one will say that any one is better equipped for the great fight than another. While these and other reflections will always occur to those who love to endeavor to penetrate the great mysteries of nature, there is yet one which needs no solution—the question of its wonderful construction and singular beauty. It is one of the great wonders of the vegetable world, and was long ago described by Sir Joseph Hooker, and named by him in honor of the celebrated *Rajah Brooke*. It has recently been introduced to culture from Borneo, by the enterprise of the celebrated firm of James Veitch & Sons, of Chelsea, London. It is rather expensive yet—\$25 is the price set on a single plant.

PROFESSOR JOSEPH L. BARFOOT.—Lovers of natural history, passing through Salt Lake city, have always been glad to make the acquaintance of Professor Barfoot of the museum of natural history, and will be sorry to learn of his decease which it seems occurred on the 23rd of April last. He engaged in a wide correspondence with distinguished scientific men all over the world. He was born at Warwick Castle, England, on the 29th of March 1816; was a lineal descendant of Robert Bruce, and, at the time of his death was heir to the Earldom of Crawford. He embraced Mormonism in London in 1856, and in 1865 immigrated to Salt Lake city, where he lived till he died.

THE PROGRESS OF REFINEMENT.—At a recent convention of undertakers it was resolved that in future their business shall be known as that of "Funeral Directors." Mr. Albaugh suggests that nurserymen must not drag too far after æsthetic improvement, and that John Smith should announce himself as "Arboreal Manipulator."

HIDE-BOUND BEINGS.—Dr. Beadle suggests that if slitting the bark of hide-bound trees be conceded to be good practice, it might be extended to those hide-bound dogs and cats which in Canada, and sometimes elsewhere, will keep tired horticulturists awake o' nights listening to their unwelcome songs.

HOUGHTON FARM EXPERIMENTS WITH INDIAN CORN.—By Manly Miles, Cambridge, 1882. Pro-

fessor Miles is just the one to look after improved corn. Corn has been with him the hobby of a life time, and the magnificent collection of varieties he had at the Centennial Exposition was one of the features of the agricultural exhibits of that great affair. The contents of the work are scarcely quotable. It is a work for deep study and reflection, and will certainly be appreciated by all who take an interest in corn culture.

If a literary criticism may be allowed, we should have to find fault with the idea which makes every sentence a paragraph. Imperfect paragraphing is a common literary fault; but surely the style which paragraphs every sentence is worse than all. It is very difficult to comprehend the drift of the author when the matter is so arranged—at least, so it strikes us.

ORIGIN OF THE MARECHAL NIEL ROSE.—A correspondent of the *Journal des Roses* says that in 1862 it was noted by M. Rapin, growing in the garden of M. Chateau at Montauban; and he was given grafts from it. M. Pradel had sent the plant to M. Chateau, in place of one in the invoice that was missing. A flower from Rapin's plant was exhibited about that time, and received the name of Marechal Niel, in compliment to that General who had recently presided at the opening of a botanic garden in the vicinity, and a medal was awarded to M. Pradel as the originator of such a beauty, although, it appears, wholly by accident. It was placed in the market by Pradel the younger, and Verdier in 1863.

INJURIOUS INSECTS OF THE FARM AND GARDEN.—By Mrs. Mary Treat. New York: Orange Judd Co. It is amazing how slow knowledge travels. It must be now nearly thirty years since Miss Margaretta Morris wrote: "In many potato fields in the neighborhood of Germantown, Pennsylvania, every stem was infested, causing the premature decay of the vines, and giving to them the appearance of having been scalded." This was said of the *Baridius trinotatus*, or potato stalk-weevil. Not a quarter of a mile from the former home of this distinguished entomologist was a potato field so scalded this summer, and on the writer of this telling the owner it was attacked by the insect, he was assured they were only "suffering from the drouth." It made no difference that the writer pointed to another patch, planted earlier, on dryer ground, and

still green; the stems had to be slit, and the insect ravages exposed before the good farmer would believe—and even then he thought the "drouth did more nor the insect," as he expressed it. Few can be found who know anything of it, yet it is more than likely that it is more destructive to the crop throughout the country than the more dreaded fungus disease. There is no doubt there is a good field yet for a work of this kind, which tells of these and other foes. Mrs. Treat, the author, is the estimable lady who dates from Vineland, New Jersey, and who is well known by the numerous useful productions of her pen. No one is better fitted, and no one could have done better, and the publishers' share in the work is worthy of the author's pen.

AMERICAN GAME-BIRD SHOOTING.—By Mr. John Mortimer Murphy. New York: Orange Judd Company. No sportsman need be told that hunting is one of the fine arts—not fine in a particularly æsthetic sense, but an art which requires a fine touch of good judgment as well as of experience to pursue it successfully. Yet there are few works which treat of this art. It is strange that there have not been more. This one will surely have a good sale. It treats especially of wild turkeys, grouse, sage-cock, ptarmigan, quails, swans, geese, ducks, wood-cocks, snipes, bay-birds, rails, pigeons, and many others. It describes the habits and ways of these several creatures from the hunter's standpoint, explaining the various modes of trapping as well as the use of the gun.

THE AMERICAN SILK AND FRUIT CULTURIST.—Philadelphia: Campbell & Pepper, Publishers. Nothing shows better the rapid growth of the silk industry than the establishment of a monthly magazine, expressly in its interest. We hope, as we believe, the present venture will prove a good success.

Many wonder why the raw silk so often presents varied colors. The following from this magazine may give the clue:

"By feeding silk-worms during the last twenty days of the larva stage, on vine leaves, a Frenchman has produced magnificent red cocoons; by pursuing the same course, using lettuce, he obtained them of a deep emerald green. Others of a beautiful yellow, fine green, and violet, were produced by the same mode, using white nettle for food." Sometimes the silk is dyed but it is always best if the color is more natural.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

NOVEMBER, 1882.

Number 287.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The subject of growing evergreen hedges under the shade of deciduous trees, has been referred to of late in our magazine. Some observers record that they have seen them do very well. We have ourselves seen cases where the evergreens forming the hedge did not seem to mind the trees in the least, and yet it is clear that in a large number of cases the hedges do suffer from large trees over them. But it is not the shade which injures, for evergreens rather like shade; but the trouble is from the drying out of the moisture by the strong roots of the deciduous trees, and to some extent by the poverty of the soil, caused by the numerous fibrous roots of the large trees eating up all the food. The evergreens in the hedge often do not die at once, but their vital powers are injured during summer, and then cold winds or even moderate frost make easy victims of them. Now it sometimes happens that the large trees do not always take all the moisture, or all the food, and then the evergreens will not suffer. Where we feel sure these conditions will be permanent, we may plant evergreen hedges under large forest trees; but as a rule it is not to be commended. Some deciduous plant had better

be employed. But there are times when it may be very desirable to have an evergreen hedge under trees. In this case dig a deep trench—a trench say two feet deep, between the hedge and the trees, cutting off the roots of the trees. Do this about every third year, filling in the earth, of course, after the roots of the strong tree have been cut off, and add a little very well rotted manure once in a while. With this extra trouble an evergreen hedge can be made to do well under large deciduous trees. Of evergreens for hedges, there are few better than the old arbor-vite, hemlock spruce, and Norway spruce. Scotch pine, white pine and others are sometimes used, and indeed any pine or coniferous tree makes a fair hedge, as they all bear pruning well. The holly makes a remarkably good hedge; but in our country the difficulty of raising the plant is against its cheapness and, consequently extensive use. Many die after transplanting in our country, but if all the leaves are taken off when transplanted, and they are treated as ordinary deciduous trees, they seldom die on removal. It may be said of all trees and shrubs, as of evergreens under trees, that they love cool, rich soil, where water comes to them often and easily drains away. This is the great success of *Rhododendron* and hardy *Azalea* culture. They will do well in almost any

soil, or in any aspect, if the soil be made deep so that the water will go down easily below the roots, and then easily drain away. To this end, if the soil be thrown out two feet deep, and a foot deep of brush wood placed at the bottom of the trench before the soil is thrown in again, it will make a cheap under-drain, which will encourage the water to go down through the upper surface easily. Peat is often used for *Rhododendrons*, but chiefly because it is cool and moist, while still admitting of the free passage of air.

The winter time is a good one to look after the destruction of the eggs and chrysalides of insects. In cities, especially the walls, fences and rough bark of trees afford shelter to them, and they can be easily hunted out. As before noted the bag-worm or drop-worm has been particularly destructive the past season, and especially to arborvitæ and coniferous trees generally. The oval "bags," more than an inch in length, are readily seen and easily collected and destroyed. On opening some of these bags with a sharp pointed scissors, only some of them will be found with eggs. Those without the eggs produce the male moth, which leaves its bag-like house in the spring. The female moth never leaves its house from the time it makes it to the time it dies and leaves its eggs behind. It is an anomaly amongst insects, and originated the saying about it, that "its cradle is its grave."

This is a much better season than spring to transplant herbaceous plants. They make their growth now, and the flowers for spring are often formed in the hearts of the buds, just as we can see flowers are formed in the hearts of lily, hyacinth and other bulbs, or as we may see in the large buds of the horse chestnut. The only objection to setting out these little things in the fall is, that they may draw out by frost; but the good cultivator knows how to guard against this by drawing over more earth than is needed, or covering the whole plantation with some material which prevents thawing out rapidly, which is really the cause of plants being drawn out by frost.

Another matter of interest in regard to collecting hardy herbaceous plants is, that there are a large number of rare native plants not yet in cultivation, which many an owner of a first-class collection would give a good deal to possess. A collection from one's own neighborhood would therefore often be really one of the most valuable one could possess, and be the founda-

tion of a series of exchanges with others, which would soon swell a little collection to one of the best.

In the culture of herbaceous plants it is well to remember that generally a part dies every year. They seldom come up in exactly the same place every year, but a bud or runner pushes out and the old part dies. Though all herbaceous plants move in some such manner, they do not all go directly underground, but make bunchy stocks just above ground. In their native places of growth they manage to get covered with decaying leaves from the woods or shifting sands on the plains, but in cultivation nothing of this kind can be naturally accomplished, and unless art comes to aid the plant they soon die away. An *Auricula*, a *Primrose*, or a *Carnation* is good illustration of this. In the two former a new crown is formed on the top of the old one, and as the lower parts in time die away, unless new earth is drawn up, success with such flowers will not be great. The best plan is to take up and replant every few years, or cover the running parts above ground with earth, so that they may have a chance to get new roots from the advancing stocks. This is noticed here at this season to show that earth is the natural covering for herbaceous plants; and therefore one of the surest ways of preserving them safe through winter is to draw earth over them. In the spring they can be unearthed and then divided and set a trifle deeper than before, which is all they want. We are often asked how to preserve *Carnations*, *Chrysanthemums*, *Pansies*, *Phloxes*, *Hollyhocks* and so forth, safe till spring. The principles here laid down will explain the practice.

Seeds of many herbaceous plants sown in the fall or early spring will flower the same season just as an annual will.

COMMUNICATIONS.

CLOSE TRIMMED TREES.

BY M. DIGRAM.

Clipped and pollarded trees are an offence where the object aimed at is the realization of supposed more attractive forms; yet where the trimming is necessary, where there is a certain useful end in view, it may very properly be done without harming the trained eye.

Margining the pavements of some Dutch towns, there may be seen rows of trees, the

upper, foliage-covered half of which is trimmed up in the shape of narrow vertical walls. This treatment, while not shading the house facade from the healthful rays of the sun, protects, in a measure, the occupants of each side of the street from the glare and heat coming from the opposite. Further, it presents an attractive object to the view of the upper windows, and acts as a screen between the two sets of these windows which face each other.

The same result might be produced, I suppose, by growing wistaria, the trumpet and other creepers, over a trellis of heavy iron wire, the tall posts supporting which would be of the same material, and stiffened against sudden winds by lateral rods crossing to and attached to the walls of the adjoining houses.

A FEW FLOWER NOTES.

BY MRS. M. D. WELLCOME, YARMOUTH, ME.

The past season has been very unfavorable on account of the protracted drought. There has been no rain storm in this section since July 5th, until September 4th, when there was one of several hours' continuance, but not sufficient to penetrate to the roots of vegetation. Almost unclouded skies, intense heat, little dew, and only two or three showers. The reader can judge what would be the condition of our gardens. For several weeks, owing to the scarcity of water, we have been obliged to let our flowers suffer, and many have wholly dried up. It has been a time to test what plants, of those commonly grown, are most reliable under such conditions. Again have I been led to admire the faithful endurance of the geranium family under hardships and shameful neglect. The old stock plants have not had their feet wet for two months, yet they are green and vigorous, though blooms have not been so abundant as heretofore. Of course the small plants bedded out in four-inch pots have been watered quite often; they have not grown, as heretofore, to sturdy plants, but all their vitality has been expended in blooming. Portulacacas, wholly neglected, have been in their glory, and the lilies were never so large and fine. A golden-banded Japan opened ten days ago and measured, when fully expanded, nine and one half inches from tip to tip; the inner petals were five and one-half inches in length. This double giant was borne singly, on a stalk only twelve inches high. Will the editor please tell us, is such a lily not rare?

I did not know that they were ever double. [We never saw one.—Ed.] The blossom had only three stamens instead of six, as usual. The bulb was planted last autumn. Although I have but a few lilies they were never so prized, and their blooming will cover a period of three months. I advise everybody to cultivate lilies just as fully as they can. With us, the last of October is a good time to plant bulbs of lilies and tulips, though the first of November will do very well. The *Hypericum*, of which I made previous mention, has been in bloom a month, and though under very unfavorable surroundings, has proved satisfactory. It is truly a desirable hardy shrub. *Tabernaemontana camassa*, with its laurel-like leaves, and double, white, fragrant flower, has been blooming for two months and is still full of buds. It is my first success with this greenhouse shrub, and I am greatly pleased with it. *Posoqueria longiflora* is another new plant to me, received from Mr. Saul, in June, and which I greatly admire, though it has not bloomed. It is thus described: "This plant forms an elegant bush, and is very free flowering. Leaves large, somewhat ovate, coriaceous and shining green; flowers tubular, pure white, produced in large corymbs of a dozen and more, waxy like, from three to four inches long and deliciously fragrant." It makes a very handsome pot plant with its shining green, leathery leaves, and when there is added the large fragrant flowers, it must be a very choice thing. Will some one who has had it in bloom report upon it, and is it a winter bloomer? I have a *Tydaea* in bloom, *Mad. Halphen*, the first I have ever seen. It somewhat resembles the *Gloxinia* in leaf and shape of flower. Color, carmine tube, lower lobes lightly tinted with lilac and spotted with carmine; upper lobes spotted with rose. *Xenophon* is thus described: "A fine large flower, tube cochineal orange, salmon red lobes covered with a dark red netting, throat spotted and marked with dark carmine." Wonder—magnificent flowers of a dazzling orange vermillion, veined with black, in majestic spikes. *Tricolor*—limb pure white, dotted with bright amaranth, tube crimson. *Uranie*—very large flower, finely striped with scarlet upon a lilac ground, orifice deep straw yellow. I have given names and descriptions of a few of the many, that those unacquainted with them may have some idea of their beauty.

The drought has prevented me from testing many novelties of which seeds have been sent

me; indeed the annuals have mostly proved a failure. One place in my garden has, however, been brilliant for several weeks with the blooms of the new *Godetia*, "Princess of Wales," which surpasses my favorite "Lady Albemarle." The color is very vivid, ruby crimson, with the outer edges bordered with pale rose. I regret that the new *Eschscholtzia crocea flore pleno* has not yet bloomed. So desirous am I of seeing its flowers I think I shall pot a few of the plants. It is thus described: "One of the grandest novelties that has come under notice for many years. A beautiful bright orange scarlet, shading off to salmon red color. The flowers are of great substance, the appearance of the plant in growth being particularly distinct and charming. It is quite as hardy as *E. crocea*, and the flowers are produced in the greatest profusion." Mr. Saul gives this in quotation as not being responsible. Perhaps he has not tested it personally. Will some successful one give a brief report?

Since I began this essay the blessed rain has been falling for eight hours, and its steady pour makes sweet music to the ear.

HYDRANGEA PANICULATA.

BY MR. W. F. MASSEY, TOWSONTOWN, MD.

Mr. Abbott, in your June number, speaks of propagating *Hydrangea paniculata* from ripe wood with ease. I have tried, years ago, to grow it from ripe wood cuttings and from root cuttings, but without any success. This *Hydrangea* is propagated with the greatest ease in spring and early summer from cuttings of the green wood. I can propagate it in this way as easily as a *verbena*. My practice is to lift as many old plants as I need for stock in the fall after the leaves have fallen. These are potted and placed in a cold greenhouse or graperly, until the last of February, when they are put in a warm house and encouraged to grow. The young shoots are cut after they have made two or three joints, being taken off just above the first eye from the old wood. This eye pushes at once and gives cuttings later. The cuttings are put in the sand of the cutting bench and given a fair bottom heat; though late in spring I find they root well without bottom heat, but not quite so quickly. The cuttings must be left in the sand until they have made quite a mass of roots, as I have found that if potted as soon as a few roots are formed, the greater part damp off in the pots; but if carefully lifted with a

mass of roots, not one in a thousand will damp. By this method I will guarantee to produce one hundred young plants from every good, bushy stock plant fifteen to twenty inches high. These young plants turned out in the open ground in May, will make nice plants by fall.

Speaking of *Hydrangeas*, we have here, along the north front of the old mansion, close to the walls, some immense clumps of *Hydrangea hortensis*, probably fifty years old or more. The soil in which these grow is full of small lumps of iron ore. The flowers on these clumps are always an intense blue. Twenty-five feet away are several other clumps, the flowers of which are always pink. The soil and the lumps of iron ore are apparently identical in both places. Now if, as some assert, the iron in the soil is the cause of the blue color in *Hydrangeas*, why are not all of them blue? The pink clumps are younger than the others, and have in all probability been propagated from cuttings of those which bear blue flowers.

We have, on this old place, many noble specimens of arboreal beauty, as might be expected in a place which, unlike most American country seats, has been for a hundred years continuously in charge of professional gardeners. Prominent among those is a copper-leaf Beech, or, as some call it, blood-leaf Beech. This is probably unexcelled by any other in the United States. Its branches sweep the turf in a circle fifty feet in diameter, while its rounded head rises as high in the air. In addition to this, the majestic oaks, elms and walnuts, and the unusually large specimens of magnolias, weeping sophoras, as well as the immense evergreens of various sorts, give to "Hampton" the look of repose and "green old age," which most American places lack.

BERMUDA GRASS.

BY C. DENMAN, MEMPHIS, TENN.

With regard to your correspondent's inquiry as to the richness of soil required to insure the free growth of the above named grass, our experience here is to the effect that it will grow in any soil no matter how poor.

As a summer grass in a hot and dry climate it is superior to any; but there are several objections to its use for lawns. It is almost impossible to use it near flower beds, as it will run through them in spite of all efforts to avoid it. Once in possession, it is worse to eradi-

cate than the couch-grass of Europe. Another objection is its dullness through winter, and far into the spring. Its rich green color through the hot summer months when all else is wilted and burned up, is very refreshing to say the least; but with the first cold nights of autumn it changes to a dull light brown, which is anything but pleasing on a well kept lawn.

Notwithstanding these drawbacks a good deal could be said in its favor. For sodding embankments, or poor sandy ground, where scarce anything else will grow, it has no equal and should be used much more than it is.

EDITORIAL NOTES.

THE BLOOD-LEAVED PEACH.—This interesting variety, so long known here, is just being appreciated in the Old World.

TUBEROSES.—It is well known that the double tuberoses will occasionally revert to its original single condition. The single form is not considered as desirable as the double, but it has one great advantage in this, that it is nearly two weeks earlier in flowering. This is worth a great deal to those who desire early sweet white flowers. The Pearl, on the other hand, is a later bloomer than the ordinary double kind, and this is to be regretted, as its dwarfness renders it so far the best for forcing. It is nearly four weeks later than the single.

FLORIDA YELLOW WATER LILY.—The *Nymphaea flava*, found a few years ago by Mrs. Treat, in Florida, has been found by Mr. Falconer to remain out all winter and flower the past summer in the botanic garden at Cambridge. He tells the *Country Gentleman* that the flowers are larger than those we get from pot plants; they rise some six to nine inches above the water, open about eight to nine o'clock in the forenoon, and close between three and five in the afternoon. They open again on the second day, but not after that.

SCRAPS AND QUERIES.

NANDINE TREE.—"D. G.," Poughkeepsie, N. Y., says: "The MONTHLY, I suppose, can give us the right name for the plant of which I send you to-day a branch. We called it 'Nandine,'

but are not sure if it is the plant. Like most of the old plants most of the gardeners don't get the right name."

[This is correctly named. Nandin is the native Chinese or Japanese name, and Thunberg, in his *Flora Japonica*, adopts Nandine domestica as given by "Hornstedt's Dissertation on New Plants," a work we have never seen, and which seems to be 'domestic' only because, according to Thunberg, it is everywhere popular in town gardens. It belongs to the Berberry family, though it has nothing of the look of a Berberry bush. It ought to be hardy from the central United States south, though we do not know of any experiments made with it.—Ed. G. M.]

A CHAPTER ON WATER LILIES.—The recent flowering as already noted in the open air in the United States of the famous Victoria regia, by Mr. Sturtevant, of Bordentown, has turned more than usual attention to the subject of Water Lilies in general. A correspondent inquires where she can get the best account of the Water Lilies under cultivation. We cannot, perhaps, do better for her than to give the following exhaustive account by a correspondent of Mr. Robinson's *Garden*, of London:

"Every one knows and appreciates that queen of native wild flowers, the common white Water Lily; but my object now is to bring into notice other less common kinds, which, from their diversity of form and color, are equally valuable. Their culture is of the simplest kind, for, if properly planted at first, they seldom give any further trouble. Where it is convenient to drain off the water, the best mode of planting the larger kinds is to make a hillock of a compost consisting of good loam and a small quantity of well decomposed manure and river sand; on the surface of this place some large stones to prevent the soil from being removed by the water. In this hillock place the plant so that the depth from its crown to the surface of the water may not exceed two feet. If there be no means of lowering the water, the best substitute is to put the plants into large baskets and to sink them to the proper depth. If the bottom be of a gravelly nature the plants will not spread much, but if otherwise, they should be kept within bounds, or they will soon grow into a mass which tends to considerably mar the effect, as shown in the form of isolated patches. In the case of young plants and the small-growing kinds enumerated below it is advisable to keep them in small baskets and in shallow water. There are about eighteen half-hardy Water Lilies in cultivation at the present time. The majority belong to the genus *Nymphaea*, and the remainder to the genus *Nuphar*. Of the native kinds, which need no description, there are three varieties, which are very distinct. The

minor form is very interesting on account of its small size, the blossoms being but one and one-half inches to two inches across, with the leaves small in proportion. The variety *candida* is a form intermediate in size between the two preceding. The rose-colored variety (*N. alba* var. *rosea*) is a plant which has excited much interest ever since it first expanded its lovely blossoms, a short time ago in the open air at Kew, being the first time of flowering in this country. It is said to have originated in a solitary lake in Sweden, from whence it was taken to one of the Swedish botanic gardens, which is doubtless the source of the Kew plants. It is destined to become as common as the white one, and, in company with it and other aquatics, it will produce a charming effect. The North American species, *N. odorata*, is a very near ally to *N. alba*, but the most perceptible distinction between them is the larger blossoms, which measure from six inches to nine inches across, and which are very sweet-scented. The veins on the under sides of the leaves are also much more raised above the surface. The flowers of this kind, too, have a decided tendency to assume a red color, and the full development of this is admirably shown in the rose-colored variety (*N. odorata* var. *rosea*, or *N. odorata* var. *minor* of some), as the flowers are much smaller than those of the type. It is a source of much pleasure to hear that living plants of this beautiful variety have recently been imported into this country from the North American lakes. The variety *maxima* differs from the type only in having larger flowers. The variety *reniformis* has the lobes of the leaf much rounded, so as to assume a kidney shape, but there is no difference in the flower. The type of the sweet-scented Water Lily was introduced into this country in 1786, but it is not so common now as it deserves to be. It requires precisely the same treatment as *N. alba*, and will be found to be quite as hardy in the Southern counties. The tuberous-rooted *Nymphaea* (*N. tuberosa*) is also a native of North America, and much resembles our native kind, but differs from it principally in having tubers developed on the roots which spontaneously detach themselves

from the plant, and so afford a ready means of propagation. The shining-leaved Water Lily (*N. nitida*) is also a near relative of *N. alba*, but has very shining leaves, and blossoms not so large and scentless. It inhabits the lakes and still waters of Siberia, and also the River Lena. This kind, and also the preceding, can be obtained from nurseries in which hardy plants are made a specialty. The pigmy Water Lily (*N. pygmæa*) is a native of China and some parts of Siberia. It is the smallest of all, having leaves not more than two inches across, and very small flowers. It is very rare in cultivation, but I noticed it at Kew in company with other kinds. The most interesting of all the *Nymphaeas* is, perhaps, the yellow-flowered kind, *N. flava*, on account of its color, as in no other sort, either tropical or temperate, is it found. I have not seen the flowers, but I am pleased to hear that living plants have just been imported into this country from North America. The common yellow Water Lily belongs to the genus *Nuphar*, of which we have one species, *N. lutea*, which inhabits many of our lakes and slow-running rivers in abundance, and, therefore, is too well known to need description. It has a very interesting miniature variety called *pumila*, or *minima*, which is found wild in some of the Highland lakes of Scotland. It is considerably smaller in all its parts than the type, and also possesses the same vinous perfume. The stranger or three colored *Nuphar* (*N. advena*) is the North American representative of our yellow Water Lily; it nearly approaches it in general aspect, but it may be at once distinguished by its larger size and the leaves standing erect out of the water if it be shallow. The blossoms are larger and the same in color outside, but the cone of stamens in the centre is of a brighter red. It was introduced in 1772, and is rather common in cultivation now. *N. Kalmiana*, also a North American kind, much resembles the small variety of *N. lutea*, and is a very interesting plant to grow in company with it. There is another kind, the arrow-leaved *Nuphar* (*N. sagittæfolia*), but I doubt if the true plant is at present in cultivation in this country."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Much of the failure in growing plants in windows comes from choosing plants of too tender a character. Plants which are usually grown in the moist atmosphere of very warm houses are unfit for window culture. Those which are very nearly hardy, but which bloom naturally in winter time, are much more suited to window gar-

dening. It is with greenhouses as with rooms. There are numerous plants which do very well in a temperature ranging between 45° and 60° during sunshine, which are much better than many of the plants usually selected. We might give a list of such, but it is now almost impossible to get full orders for desirable plants anywhere, and one has rather to use what he can get, than to select what he desires. The only

plan is to look around among the neighboring florists, and choose those which seem the best in accord with these views. Another advantage in selecting rather hardy plants for winter blooming is that we need not then fear so much the effect of cool nights. When small conservatories are attached to dwelling rooms, and these are protected by double glass windows, so as to guard against the entry of cold from without, and all crevices carefully closed, it is surprising how little artificial heat is sufficient to keep up the necessary temperature. Very often the mere keeping open of a communicating door, so that the warmth of the parlor will get to the conservatory, is all that is needed.

Plants stored away for the winter in cold pits, require more care for the first month or so than at any other time through the winter season. Many of them have unripened shoots, or shed many of their leaves, and unless these be cut off and removed, gangrene and decay commit distressing havoc. Air should be given at every opportunity, and nothing omitted that will, in any way, tend to harden the plants, and send vegetation to rest. No more water should be given than just sufficient to prevent withering, and the temperature should be kept as near 40° as possible, and every chance taken to render the air about the plants dry. When frost actually does come, no further care than protection from its embraces will then be required. Plants so hardened, may stay covered up for weeks without any light or air, and secure from the slightest injury. Mice constitute the most troublesome enemy in a pit closed for any length of time; but we have, as yet, found nothing better than the recommendation given in back volumes, namely, to take peas and soak them twenty-four hours in water, then roll in arsenic and sow in a pot, as if in the regular way of seed-sowing. A few pots so prepared, should be placed in the pit before permanently closing up. The mice usually make for these pots at their first entrance to the pits. If placed on the soil they seem to guess your secret, and will not "bite."

Plants in cellars need much the same care as those in pits. Avoid heat and dampness; frequently, however, plants suffer in cellars through getting too dry. They should be looked over, at any rate, once a month, and a little water given, if likely to become entirely dry.

Aquariums, which were once very popular, and added a great charm to the parlor or attached conservatory, are not so much in use as

they were, chiefly because people do not seem to understand the necessity of plenty of growing plants in the water as well as the fish or other creatures. These plants give the air to the water which the fish require. While recently in Cincinnati the writer of this visited the establishment of Mr. Hugo Mulertt, who exercises intelligent care for aquarium management, which makes him very successful. We obtained from him the following list of plants which he employs in his aquarium work. They are arranged in groups, according to habits of growth:

Group A. Plants that grow without roots, floating below the surface of the water. *Ceratophyllum demersum* and *robusta*, *Nitella viridis*, *Utricularia vulgaris* and *purpurea*.

Group B. Plants that strike roots from the joints. *Anacharis canadensis*, *Callitriche verna*, *Fontanelis*, *Lysimachia*, *Myriophyllum heterophyllum* and *spicatum*, *Naja purpurea* and *viridis*, *Ludwigia autumnalis* and *palustris*, *Cabomba Caroliniana* and *roseifolia*, *Ranunculus aquatilis*, *Schollera graminea*, *Zanichella palustris*, *Potamogeton crispus* and *perfoliatus*.

Group C. Root in the bottom, and multiply by suckers from the roots. Some plants of this group have a double existence, or undergo a transformation with a change of the seasons. In the summer time the leaves are of a different shape from those of the winter, so that a person not familiar with their peculiarity would think they were two different plants. *Sagittaria natans* and *lanceolata*, *Vallisneria spiralis* (male and female), *Potamogeton natans*, *Yucca aquatica* (*Eriocaulon*).

Group D. Comprises a class of plants that require rich soil for their roots to grow in; they send their leaves to the surface of the water, where they float. *Aponogeton distachyon*, *Limncharis Humboldtii*, *Nymphaea flava*, odorata and *cœrulea*, *Nelumbium luteum*, *Brazenia peltata*.

Group E. Includes very curious plants. They float on the surface of the water, and their roots hang into the water, from which they take their nourishment. *Hydrocharis morsus rana*, *Hydrocotyle umbellata*, *Lemna minor* and *trisulea*, *Pistia stratiotes*, *Trianena bogotensis*.

Group F. Includes marsh plants, such as *Iris pseudacorus*, *Aspidistra lurida* and *variegata*, *Cyperus alternifolius*, *Sagittaria obtusa* and *lanceifolia*, *Saururus cernuus*, fancy *Caladium*, *Oreontium aquaticum*.

COMMUNICATIONS.

GLOXINIA AND ITS CULTURE.

BY WALTER COLES, BELVIDERE, N. J.

In my opinion there is no summer flowering plant to surpass a well grown Gloxinia. It ranks second to no other flower for noble form and beauty. Mr. Peter B. Mead and several other good horticulturists who saw ours here this summer said they were the finest and best grown plants they had ever seen. A few hints on their culture will be acceptable to the readers of the GARDENER'S MONTHLY. Those we have here were grown from seed sown about April

1st of last year. Care should be taken never to let the soil get dry, also to have it very fine, and scarcely cover the seed. As soon as they were up nicely, so that they could be handled, they were transplanted about two inches apart in seed pans. In a few weeks they were large enough to be potted in three-inch pots, where they made nice sized bulbs, and each plant threw up from two to four flowers. After they had finished flowering, water was gradually withdrawn, but never allowed to get dust-dry until the foliage had turned yellow. Then they were stored away under the greenhouse pipes, the pots turned on their sides, where they remained until last spring. As soon as they started to make their new foliage (about the middle of March) all the old soil was removed, and the bulbs potted in two and three-inch pots. The soil used was a mixture of equal parts good turfy loam, leaf mould and peat. It is quite essential that soil should be porous and sweet. Use water sparingly until they begin to grow quite strong. Then place them in a moist atmosphere of 60° by night, which I consider quite warm enough for the starting point. Some people advocate starting them in 70°; but I think most of my friends will find it induces them to make spindly and weak growth; but as the season advances, the temperature should be increased. In a few weeks, when the two and three-inch pots were filled with roots, they were re-potted into four and five-inch pots, where they have matured their flowers this year. Do not, through inattention or neglect—as soon as they have done flowering—throw them aside to take their chance; for if the bulbs are dried off very suddenly they lose their vitality for the coming season; hence the care necessary after their blooming period is over. Our plants are all in four and five-inch pots; each bloom measuring 3 to 3½ inches in diameter, and from 10 to 18 flowers on a plant fully open. I have had a few of them photographed by Mr. P. D. Ketchledge, of Belvidere, and have sent one of the cards to the editor; so, if he can conveniently insert it in the GARDENER'S MONTHLY, the public will see I am not exaggerating. I have omitted to say that the plants should never be exposed to the sun, nor be allowed to get dry while growing and blooming.

If these directions are carried out, I think the Gloxinias will be free from rust and thrip. The erect flowering varieties are considered far more

useful and superior than the drooping kinds, as they are more appropriate for vases, bouquets, &c. Every person who has a greenhouse, let it be ever so small, may have a fine display of Gloxinias during the summer, and it is doubtful whether they can be surpassed, even by our choice orchids. They can also be easily propagated by the leaves, if you have an extra variety you wish to increase.

[With this came some magnificent specimens of Gloxinia flowers, showing that Mr. Coles knows full well what he is writing about.—Ed. G. M.]

HARDENBERGIA COMPTONIANA.

BY CHARLES E. PARNELL, QUEENS, N. Y.

Hardenbergia (*Kennedya*) *Comptoniana*, one of the many beautiful climbers that adorn our conservatories, is an evergreen climbing or twining vine belonging to the Natural Order Leguminosæ, and is a native of New Holland, from whence it was introduced in 1803. It is an elegant climber, attaining a height of from twelve to eighteen feet, of not a very rambling disposition, with strong smooth stems and glossy green leaves, the leaves being scattered or distant from each other. It produces its flowers very freely during the months of March and April in long, erect racemes, each raceme being composed of an immense number of bright blue flowers. The *Hardenbergia* is a plant that requires a little skill in order to cultivate it successfully. It requires, and must have, good drainage, a compost of two parts turfy peat, one part well-rotted manure, or leaf mould, with the addition of a liberal portion of sharp sand, in order to render the compost a porous and open one. Water should be liberally supplied, but care should be taken to prevent the soil from becoming too wet; the plant requires to be syringed overhead freely in order to guard against the red spider, to which insect it is very subject. The *Hardenbergia* can be planted out in the greenhouse border and trained up the rafters, or it can be grown in large pots, and if the plants are carefully trained to a neat circular trellis, they will form, when in blossom, excellent specimen plants for decorative purposes. But in order to guard against disappointment it is well to remember the fact that young and small specimens seldom flower well. Propagation is effected by seeds and cuttings; cuttings of the half-ripened wood are said to root freely

if placed in heat under a hand glass, but the easiest and most preferable method of increasing this plant is by seeds, which are freely produced, and from which fine young plants can be obtained in the course of a few months. The seeds should be sown early in spring in a pot or pan of well drained, light, peaty, sandy soil; soak the seed in warm water previously to sowing; sow thinly and cover slightly; place the pot or pan in a warm, moist situation; keep moist, and shade from bright sunshine. As soon as the plants are strong enough to handle, pot off into three-inch pots, using light, fibrous soil; keep close and moist, until well established, then gradually expose to the open air. Do not permit the roots to get matted or allow the plants to become pot-bound; but shift into larger pots as often as necessary. During the summer season the plants (if grown in a pot) can be plunged in a partially-shaded situation, care being taken as to watering—syringing. A winter temperature of from 40° to 60° will suit this *Hardenbergia* very well.

NATURAL HANGING BASKETS AND EPERGENES.

BY MRS. C. S. JONES.

Those popular floral receptacles of modern times, called "Hanging baskets," are at once so unique and beautiful, and have become so universally used, that any suggestions tending to impart new ideas regarding them are very generally appreciated. This must plead my excuse for offering the following hints, intended more especially to aid those amateur florists not blessed with extensive means to purchase the costly receptacles offered in our floral stores.

Some years since, among a lot of treasures sent me by that generous patron of amateur florists, Mr. P. Henderson, were the first *Fittonias* and *Gymnostachyums* I had ever had the good fortune to possess, and charmed with the rare beauty of the foliage, felt anxious to cultivate them in the manner best calculated to display it. This, after many experiments carried on through successive months, which largely increased my stock, I found to be so made by means of pendant receptacles and epergenes, as to form one entire mass of wonderfully beautiful foliage, displayed on every side, and which have proved so satisfactory that I feel no hesitation in recommending the mode to others.

The baskets used for this purpose are of several varieties—the ordinary wire baskets of graceful

form; as a matter of economy, muzzles, such as farmers use for oxen and horses, the globular form of some of which produce specially fine results; cocoanut shells perforated with half-inch holes; the common flower pot treated in the same manner, making holes larger or smaller, according to size of pot; this is easily done by first soaking and cutting out with a jack-knife and fret-saw blade. The baskets when planted, and in fine growing condition, appear enveloped with the rich foliage, to produce which it is necessary to insert cuttings or small established plants head downwards through the holes in the bottom and sides of the vessels before filling in the soil. The central plant should be first inserted, the others disposed around it in regular order, using fresh green moss to pack firmly between them, so as to keep the soil in proper place. I prefer the soft, cushion-like variety found on the trunks of trees for this purpose, not only because of the close felt-like appearance as it continues its growth, thus presenting a bright, fresh groundwork of perpetual green, but also because it is better adapted to keeping the soil in place than the loose, coarse varieties, which, though stronger, soon present a brown unsightly appearance. After surrounding each cutting with the moss, and thus covering the bottom and sides of the basket, the whole cavity must be filled with loose, friable soil, for which nothing compares with "cocoanut refuse," mixed with good loam and clean sand; the upper surface filled with a number of rooted cuttings, placed two inches apart, using a dibble for making the holes. This finishes the operation, and the basket copiously watered with a fine rose, is then hung in a warm, shaded spot, keeping constantly and uniformly moist with tepid water. This is best effected by plunging the basket in a large vessel of water.

During the growing season these baskets appear like one mass of living beauty, the brilliant foliage of *Fittonia gigantea*, with its network of rosy crimson, and *F. argyroneura*, entirely overlaid with a ground work of rich green, form solid masses of luxuriance, the unique beauty of which can only be realized and appreciated by ocular demonstration. Where a round wire basket is used a massive globular specimen is produced, which suspended in proper position is wonderfully imposing. *Gymnostachyum Pearcei* will perhaps be still more admired thus treated, its elegant metallic green foliage covered closely with a network of intense rosy carmine, pre-

sending a charming appearance when trained carefully to the wire-work of the basket.

Before closing, I cannot forbear speaking of this class of plants as ornaments for the table a feature of festive occasions, everyday becoming more popular and meeting with the attention it justly demands. It is not the wealthy alone who may enjoy the rare delight of looking upon beautiful flowers and foliage as they partake of their repasts. It would be far wiser were people with limited means to cultivate a few permanent plants for this purpose that would be always available, than to resort each time they have visitors to the garden or conservatory, or perhaps apply money required for other purposes to the purchase of cut flowers from the florists.

I use for the purpose shallow pans of various sizes, according to the table and occasion, and the long sprays, thickly covered with rich foliage, soon completely hide the sides, and droop from the upper tiers in long festoons. A charming stand for the centre of a table is thus made: Four pans, ranging in size from fourteen inches diameter and four inches deep, to a small one six inches diameter and three inches deep. These must be placed one within the other in progressive manner, each one elevated two to four inches above the one below it. A few pieces of broken crockery are strewn over the bottom of each; the remaining space is filled with fibrous soil and silver sand, into which rooted cuttings or established plants are thickly set round the edges, the stand placed in a warm corner and kept uniformly moist.

For these purposes I have found *Fittonia argyroneura*, *F. gigantea*, *Gymnostachyum Pearcei*, *G. Verschaffelti*, and the curious saxifrage, *S. Sarmientosa*, are rarely beautiful for the upper pans, and especially for the hanging baskets.

EDITORIAL NOTES.

LAPAGERIA ROSEA AND ALBA.—The *Lapageria* is seldom seen in such condition as it should be, although it is one of the easiest-grown climbers with which we are acquainted. We are about to devote the greater part of the roof of a cool division, thirty feet long, to the two varieties, and expect they will nearly fill the allotted space next summer; but we have good plants to begin with. The red one, in fact, though in an unfavorable place at present, has made some hundreds of feet of young shoots altogether since it was cut down in spring. It requires a cool, moist

soil, and a perfectly cold house, in which the shoots should be trained close to the glass, where they will flower their whole length. The best plan is to stretch wires four or five inches apart for it, in the direction in which the shoots are to be led, and they should be allowed to follow the wires themselves, which they will do—twisting along as neatly as possible—without the least assistance, except that when more than one shoot is allowed to a wire care must be taken to prevent the leaves being caught in the twists. To attempt training the shoots by ties is troublesome, and not a successful plan. Stopping the shoots occasionally induces flowers to come sooner than they otherwise would, and produces little spurs, each of which furnishes several flowers. The beautiful white variety is likely to become a great favorite for various purposes, and we would recommend those who have it to plant it out at once, however small their plants may be, in a compost of peat, loam, and plenty of sand, with a little rotten manure, and to give it room and light, keeping the soil about the roots rather wet than dry. Our large plant, which grows so rampantly every year, though it does not flower so freely, owing to the shade over it, has never been otherwise than wet at the root for three years, on account of the drip from the other pots, and yet it is in fine health and still growing rapidly. The *Lapageria* makes a disproportionate quantity of large thick roots, considering its habit and growth, though the shoots of established plants are sometimes as thick as small pot vines.—*Garden.*

CYPRIPEDIUM INSIGNE.—Owing to the large number of beautiful cypripediums that have been introduced to cultivation within the past decade, there is some risk of this fine old Lady's Slipper being overlooked. It is not perhaps necessary to institute comparisons between our old friend and the newer kinds; but were a comparison made it would be perfectly safe to aver that in point of beauty it is equal to most and superior to many of those at present at the command of the cultivator. In usefulness it certainly has no superior, and as nice little plants can be purchased at from half a crown to five shillings each, it may be truly said that it is within the reach of the humblest amateur. It is a great favorite with me, because of the facility with which it can be grown in gardens in which there is no house specially for orchids, as it thrives in a much lower temperature than any other of the species. We have no stove or

orchid houses, yet we have several magnificent specimens which yield a splendid lot of flowers every winter. We have cucumber houses and melon pits, which are set to work early in the year, and with their aid and a greenhouse, we grow the cypripediums as well as could be wished. Our practice is to place the plants in one of the cucumber houses started for an early crop two or three weeks after the flowers have lost their beauty, and at the same time we shift those requiring more space at the roots into pots of larger size. At the same time those becoming too large are divided into two or more portions, and put each part into a separate pot. In this structure they remain until the end of June, when they are removed to the greenhouse, in which they occupy a place until the end of September. About the middle of that month we clear out one of the cucumber houses that has been at work during the summer, and after the woodwork and glass have been cleaned and the walls washed over with hot lime, we fill it with such plants as bouvardias, gesneras, and epiphyllums that require more warmth during the winter than is afforded by the ordinary greenhouse. In this structure the cypripediums are placed, and there remain until after the flowering season is over, and they are removed to the early cucumber house. The temperature maintained throughout the winter ranges from 60° to 65° by day, and averages 55° by night. Some of my friends keep this cypripedium in the greenhouse throughout the year, and succeed in flowering it very well; but the results are more satisfactory when it can have a little additional warmth both during the winter and when the new growth is in progress. It will thrive in sphagnum-moss and peat, separate or in mixture; but peat alone appears to produce the strongest growth. There is no occasion to hanker after special varieties, as the flowers of the specific form are exceedingly beautiful.—*Gardener's Magazine*.

PRUNING MARECHAL NIEL ROSE.—Considerable diversity of opinion has been expressed from time to time as to the best method of growing this rose, some asserting that it does best on its own roots, others being equally sanguine that it succeeds most satisfactorily on the seedling brier or some other stock. Leaving these differences out of the question for the present, permit me to allude to another peculiarity in the cultivation of Marechal Niel, and that is the time at which it should be pruned, and also how that operation

ought to be performed. When in a semi-dormant state this rose dislikes much knife work. Several examples of it planted out here two years ago, and which were unusually strong (one having made a main rod from twenty-five to thirty feet long last year), got infested with green fly, and in fumigating it some of the more tender leaves got injured through the tobacco smoke. This was when the buds were about half developed last spring, and, of course, wherever the leaves were most injured the flowers suffered in proportion. After flowering, I decided on heading back some of the plants with a view to strengthening them when they began to push. I find, however, that the rods that are strongest at the base are the weakest in pushing, and one or two of the plants are so weak that they will have to be replaced; other plants of moderate growth have pushed vigorous shoots from their base. It is hard to get over facts like these, which point directly to the rose doing best on its own roots. Had our plants been worked on the brier or any other stock, the probability is that most of them would have died, whereas every succeeding shoot that is produced from the base is a degree stronger than its predecessor, and tends to increase and invigorate the roots. I would recommend, therefore, that all pruning, or rather thinning out, necessary in the case of this rose, should be done when the plants are in full growth, and not before they start after flowering. The strongest shoots should be selected, and the weaker ones rubbed off with the fingers at an early stage of their growth, and if further thinning be necessary it should be done before the season of growth is very far advanced. It is so easy to propagate a few fresh plants every season that those who desire to cultivate this rose by the simplest method should be prepared for the loss of an old plant from time to time by having young ones ready to take its place.—*W. Hinds in Garden*.

NEW OR RARE PLANTS.

BIGNONIA MAGNIFICA.—There are few more beautiful plants than the several greenhouse species of Bignonia or Trumpet vine. Bignonia venusta, for instance, is one of the best known and highly appreciated of all winter-flowering plants. Here is another good addition, introduced by Mr. Wm. Bull, of Chelsea, London, who says:

"A free-growing and extremely floriferous

plant, of scandent habit, introduced from the United States of Colombia. The flowers, which an exceedingly attractive color, ranging from delicate mauve to rich deep purplish crimson,



BIGNONIA MAGNIFICA.

are produced in large branching panicles, are relieved by a conspicuous throat of light prim- of great size (about $3\frac{1}{2}$ inches across), and of rose color."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Many like to get fruit trees in the fall, heel them in, and so have them ready for the early spring season. It is an excellent idea in many respects. The wounds granulate, and are ready to make new growth as soon as the spring weather comes. Again, when we get trees in the spring, they are often delayed, or we are delayed in setting them out, and spring is nearly over before the work is done. Then the wounds have not time to heal, and new fibres come before the demand for moisture, as the warm weather proves too much and the plant dies.

All this is obviated by having the plants on hand. But nothing is free from objection. As usually done, the fall-procured trees are put in loosely, slanting, and many roots are not in contact with the soil. They do not heal, but dry up, and this is a great injury. Now it should be remembered that it is the drying up of the stems by cold, frosty winds, and not so much low temperature, that injures fall planted trees. The trees should, therefore, be set together as thickly as possible, in a square block, in a sheltered place, the earth pounded in as tightly as possible, and remain there till ready for them in spring. The sheltered place keeps the winds away; the planting thick in a square block, keeps the winds from whistling through the branches, and the pounding of the earth gives every root a chance to heal and to work. A couple of men can put in several hundred a day in this way; and though it took more time, it would be time well spent.

The winter season is a very important one in the management of fruit trees. Pruning is especially important. Some believe that if the foundation of a tree be properly laid in youth, there will be no necessity to prune an adult tree. This does not accord with the writer's experience. An intelligent examination, both with the saw and good knife in hand, should be made every winter. Real good, large, healthy leaves in every part of a tree is of vast importance, and these cannot be had when branches are close together, smothering one another.

It should always be remembered in pruning that we want sound, healthy wood to make sound growth, and yet nothing is more common than to see in dwarf pears, especially, the healthy, vigorous shoots shortened back, and loads of weak fruit-spurs left to make the next season's growth! Thinning out, not shortening back, is what such trees require.

Pruning is very important, but above all, for both apple and pear orchards, we bespeak a liberal dressing—a top dressing of something or another. If no manure is to be had, even common road sand will be found to have a beneficial influence. Poverty of the surface soil is oftener a cause of fruit failure than "grass," "change of climate," or many imaginable ills brought up from some ghostly cavern of thought to cover up the poverty of pocket or of industrial inclinations.

The treatment of the bark of fruit trees is growing in importance with practical fruit growers. There is no doubt but that Dr. Warder, Mr. Barry and other leaders in the practical knowledge of fruit culture, are entirely correct in the ideas they have publicly expressed, that a tree perfectly healthy will throw off its useless bark in its own way, in its own proper time, without any aid but nature. Unfortunately our methods of culture are too often against nature, and it is rare to find trees so thoroughly vigorous and healthy that they can dispense with the fostering hand of man. We have, therefore, great faith in bark treatment as an aid in successful orchard culture. An unusual burst of hot sun in summer, poor soil, attacks of scale or other insects will often harden the smooth bark of trees, so that the new growth of wood and bark the following season cannot expand properly. The branch is practically enclosed in an iron band. In this case slitting up the bark is a speedy and positive remedy. So with the rough bark, if it do not scale off easily and rapidly, help it to scale by rubbing or washing it off. The practical old fellows, both in the old world and the new, have found this to be good practice by hard-headed experience, and without having the advantage of reading an article like this. In every collection of good orchard tools and im-

plements are found contrivances for rubbing off useless bark. Annexed is a wire-glove, used in Germany for taking off the rough bark of the grape vine.



It is little use to attempt to grow vegetables well, unless the soil is well treated. They may be and are grown on thin soils, not only at a great expense for manure, but at a great risk of dying out in a dry season, and of having the roots rotted out in a wet one. In these parts where the frost has not yet been severe enough to injure the celery crop, it may have another earthing up. Care must be exercised in the operation not to let the earth get into the hearts of the plants, or they will be liable to rot. Where the plant has evidently finished its growth for the season, measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. When large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be readily accessible. It always keeps best in the natural soil, where it is cool and moist and free from frost, and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips, and other root crops, will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar or buried in the soil, heads downward, to keep out the rain, or laid on their sides as thickly as they can be placed, nearly covered with soil, and then completely covered with corn stalks, litter, or any protecting material. The main object in protecting all these kinds of vegetables is to prevent their growth by keeping them as cool as possible, and to prevent

shrivelling by keeping them moist. Cabbage plants, lettuce and spinach sown last September, will require a slight protection. This is usually done by scattering straw loosely over. The intention is principally to check the frequent thawings which draw the plants out of the ground.

In making new vegetable gardens, a south-east aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing too great a run of water in heavy rains. The plots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If water can be introduced, it is a great convenience.

Sometimes broccoli does not head before there is danger of frosts, especially if growing vigorously. If taken up with small balls of earth, and set in a damp cellar, they will still perfect themselves.

Asparagus beds, after the tops have been cleared off, are better covered with litter or stable manure. The plants shoot easier for it next season.

When the ground becomes frozen, or no other work offers, preparation can always be made for advancing prospective work when it arrives. Bean-poles may be made; and if the ends are charred, and then dipped in coal tar, the commonest material will be rendered nearly equal to the best cedar.

COMMUNICATIONS.

A HISTORY OF SOME CITY PEACH TREES.

BY HON. LORIN BLODGETT.

[The following memoranda were sent to us, with the excellent peaches to which they refer, and are regarded as of sufficient interest in connection with the history of peach culture to give them a prominent place in our columns.—Ed.]

Blodgett's Golden Cling.—Three peaches, 6½ oz. each; 3 inches in diameter; 8½ inches in circumference. Tree 16 years old—bearing 14 years. Tree measures 24 inches in circumference 2 feet from surface of earth.

Blodgett's Golden Pointed Cling.—Three peaches, 4 oz. each. Tree 16 years old—bearing 13 years. Tree measures 22 inches in circumference 24 inches from surface.

Blodgett's Golden October Cling.—Three peaches—weight, 4 oz. each. Tree 16 years old—bearing 13 years. Tree measures 38 inches in circumference 2 feet from surface; least diameter, 12 inches below branches, one branch 24 inches in circumference 5 feet from surface.

Blodgett's Golden Freestone.—Three peaches, these small—usual weight, 4 oz.; many 8 oz. Tree 16 years old—bearing 14 years. Measures 30 inches 24 inches from surface.

Blodgett's Crimson Cling.—Three peaches, average weight, $3\frac{1}{2}$ oz.; these, the last on the tree, belong to September 20th; very fine for putting up. Tree 16 years old—bearing 14 years. Tree measures 24 inches 24 inches from the surface.

Blodgett's Crimson Freestone.—Two peaches, last of season; average weight, $3\frac{1}{2}$ oz.; belongs to September 20th. Tree 16 years old—bearing 14 years. Tree measures 26 inches in circumference 2 feet from surface.

Miss Percival, White Freestone.—Average weight, 3 oz.; bears very heavily this year; often weigh 7 to 8 oz. Tree 16 years old—bearing 14 years. Measures 21 inches in circumference 1 foot from surface. The Percival was greatly injured by overbearing and the storm, yielding 7 bushels this year.

GRAPE CULTURE UNDER GLASS.

BY JOHN EGAN.

In my opinion there is no subject in horticulture which has been more thoroughly ventilated than that of grape culture. The most eminent horticulturists, both in Europe and America, gave it profound attention. Therefore, it seems to me that I have accepted a very difficult task in trying to make interesting so well worn a subject. To try to give the full routine of culture, would make this article too prosy, therefore I will confine myself to its most important points, and will begin with the proper structures for this purpose.

The forcing house wherein grapes are intended to be grown for the table in April or May should be a lean-to, of whatever length required, twelve to fourteen feet high, and of proportionate width, and set to a due south aspect. For later crops the house may be a double span, running north and south. The retarding house should face the west. As to heating by hot water, it is, I think, unnecessary to say much, being brought to very great perfection. Some persons are and

have been advocating the use of steam for heating hothouses. From my own observation, where steam was used for the above purpose, the operator was very often in very hot water.

Beds or Borders.—For the earliest house there should not be any outside borders. The border inside ought to be raised as for rose beds, but of greater depth, say about twenty inches, with hot water pipes beneath, and of course the drainage must be of the most perfect kind. The soil should be thus composed: One-half strong brown loam, one-fourth light sandy earth, an eighth part of leaf mould, an eighth part decayed cow manure; a moderate quantity of ground bone may be added, or old lime rubbish will be better, as the bone is apt to generate a species of grub which may be injurious. This bed or border is under full control, and the vines can be rested sooner than if their roots extended outside the grapery; consequently we can obtain much earlier fruit. Many know with what difficulty their vines are induced to start with their roots in a cold base; this and the practice of pruning before the foliage has entirely fallen, are the causes of this difficulty, and valuable time and fuel are lost thereby. For second early crops this kind of border will not be necessary, and those as at present in use are without doubt as good as may be. The object in having a border outside the house was, that when the roots had filled the inside one they would find their way outside. But in most of the houses I have had in charge, I found hardly any inside the house; they had nearly all found their way to the outside. The proper place to plant, in my opinion, is at the centre of the house, and as they progress in growth, to lay down or bury three feet of the cane annually; in two years they will appear as if planted originally at the foot of the rafters. There will be no loss of fruit by this mode, as some apprehend, as the layering will not be performed until after the vines are pruned in December. Mulching the inside and keeping it so for a year or two will encourage the roots. There is objection to borders outside the house, as they are exposed to heavy rains, and being generally very rich, retain moisture a great length of time, and so injury to roots is apt to occur, and this may happen just as the grapes begin to color, and shanking and shriveling of the fruit often follow. There ought to be some protection used in these cases, so as to throw off superabundant moisture.

Ventilation.—Most of the grape houses erected

of late years have not sufficient ventilation, the old style of houses being far better off in this respect, especially where early fruit is not desired, and also when the fruit is to be kept on the vine for daily use. The varying shade cast by the deep rafters and woodwork kept both foliage and fruit in better condition than by the modern fixed roof style of house.

Temperature.—About 50° Fahrenheit is enough to begin with at night in the first stage of forcing, and it should not pass 55° morning and night, till all the buds have sprung. This is a point of very great importance in the forcing of grapes. If the forcing be commenced with a dash, as some fast young grape growers term it, and a high temperature be kept up from the beginning, the chance is that not more than one half the spurs will start. It is best to imitate nature as near as possible in all horticultural operations, and the further we deviate from her laws the quicker will retribution come. After the buds are well started, the heat must be gradually raised to 60°, 65° and 70°, to remain at that till the bloom opens. This rise from 50° to 70° cannot be effected in less time than two weeks. As the bloom opens the vines should be jarred or shaken in the morning to help impregnation, and the Muscats should have a portion, say an inch or so, of the extremity of the bunches cut off, as this point hardly sets well, and if taken off while the cluster is in an embryo state will appear more natural.

Watering and Syringing.—Syringing must be done frequently from the start till the vines commence to bloom, but watering must be attended to at least twice a week, and then no homœopathic dose, but a thorough soaking, and along till the grapes begin to color. Syringing must be performed every evening in good weather, until the grapes begin to swell off for coloring.

Thinning.—Thinning the bunches, and also the berries, is very important, as on severe thinning depends, in a great degree, color, size, and with good ventilation, flavor also.

Insects and Diseases.—In the grapery, even with fair attention, we are often troubled with red spider; and there, also, we often find the mealy bug in all his glory. What brings him there? Some enthusiastic gardener who wants to grow a stove plant or orchid and has no other place for them. We also find green fly and thrip. All of these can easily be destroyed by syringing with the following mixture: 1 gill kerosene, 2 lbs. whale oil soap, 1 lb. tobacco soap, 80 gall.

water. This will be more effective for the red spider than sulphur or its fumes, and also for mealy bugs. Fumigations of tobacco are effectual for destroying both the aphid and thrip.

Dry rot of the roots shows itself by the flagging of the young leaves when exposed to the sun, and shanking and shrivel, and all others, principally arise from severe summer pruning and over-cropping. I think if the vines were planted farther apart than they usually are, say six feet, there would be some chance for the plant to bear heavy crops, by reason of having plenty of foliage and healthy roots to carry on the circulation rapidly, and so draw and elaborate sufficient nutriment to sustain it. Naturally a plant extends its roots in proportion to its branches. As this cannot be very easily done in the grapery, we ought to give the vines at least some chance for existence, either by cropping lightly or in some other way.

Varieties to Plant.—The Muscat of Alexandria, Black Hamburg and Black Prince, for productiveness, flavor and other good qualities, stand highest in the list of varieties; in fact, most of the others with high sounding names are hardly worth culture, many of our native varieties being superior in every respect.

Pruning—I prefer the spur system to any others, and should say the double spur. By this mode we have always young wood which bears fruit but once, and is then cut out and replaced by a shoot of the same age which has not been allowed to bear fruit.

I am afraid that I have exhausted your patience, but being a lover of the grape and its culture, will, I hope be accepted, as some excuse for this prolix paper.—*Read before the New York Horticultural Society.*

EDITORIAL NOTES.

NEW WHITE GRAPES.—There was a time when the editor welcomed the white grape. There were not many good ones, and it was safe to offer a comparative opinion. Now it is reversed. They are so numerous that he dare not undertake to describe one, and say wherein it differs from some one he has already seen. All that can be done by the editor now is to record their appearance and leave them to fight out the battle for supremacy among themselves.

One of the latest of these brilliant appearances in the viti-cultural sky, is the Stelton,

raised by Mr. Thompson, of New Brunswick. The bunches are about eight inches long, well shouldered, rather loose, berries about the size of Croton, and "not hard to take." It is compared favorably in flavor with the Lady Washington.

DANDELIONS.—These have been so much improved in France, that their culture, as a salad herb, ranks with lettuce or endive.

TOMATO CATSUP.—There is a wonderful difference among the various articles called Tomato Catsup, from the rich sauce, so thick it will hardly pour, to the thin, watery stuff that would not keep but for the vinegar and salt it contains. Every family should make its own, not only as a matter of economy, but of safety. If one must buy, avoid the bright red, attractive looking compounds, as they are artificially colored. The cheap stuff sold to restaurants is made from the peelings and other refuse of the canning factories. Good catsup can only be made when the fruit is in perfection; towards the end of the season, when the nights get cool, and growth is slow, the fruit is watery and will not yield the rich pulp of the best fruit. Select ripe tomatoes, cutting away any green portions, cut in pieces, stew until thoroughly done, and rub through a sieve fine enough to retain the seeds. Evaporate what passes the sieve to the desired thickness; for this, no rules by quantity can be given, as a bushel of some tomatoes will yield twice as much pulp as others. The evaporation should go on over a slow fire, being careful not to scorch it. When thick enough to pour from a cruet, without inconvenience, add salt and spices. Here the recipes give the greatest possible variety. Be sure and use salt enough; a chopped onion or clove of garlic, tied in cloth and cooked in the pulp, to give just a suspicion of the flavor, is liked by many; allspice, black pepper, cayenne and mustard are the principal spices, and are used according to the taste of the consumers. One recipe directs for a half bushel of tomatoes; cloves, two teaspoonfuls; cinnamon, allspice and black pepper, two tablespoonfuls each; these are not to be ground, but bruised, placed in a little bag and boiled in the pulp while it is being evaporated; when the pulp is thick enough, remove the bag and add mustard, ground, two tablespoonfuls; cayenne pepper, two teaspoonfuls; good vinegar, two quarts, and salt to the taste. Another recipe uses all ground spices, viz.: For the pulp from $\frac{1}{2}$ bushel of fruit:

allspice and cloves, $\frac{3}{4}$ oz. each; mustard, $1\frac{1}{2}$ oz.; black pepper, 3 oz.; mace, $\frac{1}{2}$ oz.; cayenne, $\frac{1}{4}$ oz.; salt, 6 oz. or sufficient, and vinegar, 2 qts. Add the spices, boil a minute or two, cool and bottle.
—*Amer. Agriculturist.*

SCRAPS AND QUERIES.

APPLES FROM MECKLENBURG COUNTY, N. C.—*"M. W. C."* writes: "You will please find a small box of apples by express, prepaid. Not that these are better or finer than any other apple in these days, but that they are very old, of many years standing, without a name. As far as my knowledge extends, I think they were some of the first apples introduced in this neighborhood. I have seen them at several old homesteads where the buildings were all gone, but the old apple trees were still bearing tolerable fruit. Not grafted; fruit trees commence to bear young. Now what I claim for this apple is that it is long-lived. There are trees on our place that have been planted sixty years, and to my certain knowledge have not been cultivated for forty-five years, yet are still in a state of tolerable preservation, bearing a good crop of medium-sized apples every alternate year. The tree is not of a very nice growth, rather open, very tough and strong. I never saw a branch break, but will bend to the ground without breaking. A good apple to bake, does not need much sugar. Fine cider apple, good keeper, ripens with the horse apple, and keeps much longer. I think it would make a good fall apple in the North. If you have the same apple with you I would like to have the name, and you can test the apples and let me have your opinion."

[These were certainly very fine apples. They were, however, so very much like Sweet Bough that it was difficult to find any difference, except that one might say they were very fine specimens if they had been given to us as really that variety. They are in season in North Carolina in September.—*Ed. G. M.*]

PEAR FROM WISCONSIN.—*"C. P.,"* Beaver Dam, writes: "As we have been much interested in the notices of new fruits in *GARDENER'S MONTHLY*, we send you specimens of a seedling 'Pear,' tree, upright, strong grower, and apparently as hardy as any of our iron-clad apple trees, and for the past twenty years has been the least subject to the blight of any pear we have grown, ten other sorts bearing, all of which are more or less

scabby or badly cracked; this one smooth and fair."

[This is about the size and color of a small Bartlett and of fair quality, not equal to other catalogued kinds of the season. But it has a fair appearance, and has solid flesh which would permit of good marketing, and these good points with its health, ought to make it valuable for this high northern region.—Ed. G. M.]

SPROUTING OF PEAR ROOTS.—"A. S. M.," Altoona, Pa., writes: "Can you tell me what remedy will keep pear roots from sprouting, or how can tree and all be killed?"

[Pear roots generally sprout when the variety grafted on the stock is the weaker grower of the two, or when the roots are injured by the spade, plough, or vermin.

If pulled up while the wood is still soft, as soon as we can get hold of them, they seldom appear again the same season.—Ed. G. M.]

LE CONTE PEAR.—"H.," Montgomery, Ala., says: "Will you please give your opinion of the qualities of the Le Conte pear in the next issue of the MONTHLY."

[The Le Conte is a very good flavored pear, paler and somewhat narrower than the Kieffer. Like that, and indeed all other pears, there is a difference in quality according to the part of the tree the fruit is taken from. When from a very weak branch, or from a tree which is allowed to bear too freely, it is poor enough. Like Mother Goose's little girl, "when she was good she was good, but when she was bad, she was horrid." The Le Conte and Kieffer are very poor trash when ripened under unfavorable circumstances.—Ed. G. M.]

CHINESE CLING PEACHES.—Mr. Charles Black, Hightstown, N. J., writes: "I see inquiry of 'R. S.' in the MONTHLY for a white cling. We send you a box containing two of Chinese Cling and one Mammoth Cling. The former is red at the seed, but the latter is pure white, and ripens about two weeks earlier than Late Heath. The latter never ripens well here, and colors full as much as the Mammoth. The trees from which we took the Mammoth are overloaded, and fruit only medium size. There are plenty of white clings in the South. We have two others of the Chinese Clings that were raised by Mr. Berckmans, Augusta, Ga., and I see he describes them as white. We have them but not in fruit. We grow several clings, but are all for the South. We have but little demand for clings North. The

Chinese Cling is soft fleshed when fully ripe and really good."

[The Chinese Cling is evidently a distinct race, and there are doubtless many varieties of it. It will be necessary to be particular about names.—Ed. G. M.]

COL. MCFARLAND'S LATE PEACH.—This peach originated near Harrisburg, Pa., in 1874, being a seedling of Late Crawford. It is of very large size, specimens grown in the drouth of 1881 measuring over eleven inches in circumference, and the size is well maintained throughout the crop. Skin rich yellow, with a red cheek; flesh yellow, edged with red at the stone, from which it parts freely; juicy, rich and high-flavored, resembling the Susquehanna in quality. Tree strong, vigorous and spreading, ripening a large crop between Oct. 10th and 25th, after all other peaches are gone in that section.

Charles Downing writes as follows, under date of Oct. 14th, 1881, to Col. McFarland: "Your basket containing three peaches was received yesterday in good condition. They are large, fine, showy peaches, of very good quality, especially for a variety ripening so late in the season; and if they continue in size and quality, and prove as good in other localities, they will be an acquisition as a late market peach, and also for home use."

[With the above we received, on the 5th of October, some specimens confirming the character given there, and the opinion expressed by Mr. Downing. They measure eight and a-half inches round, and the flavor was fair for such a late variety.—Ed. G. M.]

PEACH FROM CHANUTE, KANSAS.—"J. T." sends a very fine peach which he proposes to call "Golden October." The specimen sent came to hand October 5th. It was rather above the medium size, of a fine golden color, cling-stone, with a moderately good flavor in comparison with the best of its season. Peaches, especially late peaches, are so numerous that its exact value must be measured by comparison with others ripening with it at the same season.

MOORE'S EARLY GRAPE.—Mr. Moore says: "We forward you per express this day a basket of Moore's Early Grape. In the top of basket will be found a medium-sized Concord grown in the same vineyard."

[The Concord sent was smaller and inferior to the best Concords raised here; but if this is a fair sample of the Concords of Massachusetts it

is safe to say that Moore's is one third larger every way and a much more eatable grape.—Ed. G. M.]

THE TRIUMPH GRAPE.—A distinguished pomologist writes: "I, too, had the privilege of tasting the Triumph which Munson sent to me, and it is indeed a wonder in the way of hybrids. Indeed it seems scarcely credible that the Concord should have been one of its parents. Unless the fact was undoubted I should suggest 'Chaselas Musqué.'"

JESSICA GRAPE.—Some specimens from D. W. Beadle came to hand in a somewhat fermented condition, but appeared to be a white grape of very superior flavor. It is claimed to be a very early variety, and, so far as we may be allowed to judge from these imperfect specimens, it promises very well indeed.

A NEW PLUM.—"W., Cayuga, N. Y., says: "I send you to-day a sample of my new seedling plum, 'The Shipper's Pride.' This plum has been under my notice for five years, and has borne good crops each year. I would be glad to get a favorable notice from you if the plum will bear it."

[A large, round, dark purple plum of excellent flavor. We are delighted with everything about it except its name. It is bound to be

shortened to "Shipper," or "Pride," if it should be lucky enough to get into general use.—Ed. G. M.]

KELSEY'S JAPAN PLUM.—"H., Oakland, Cal., writes: "We forward you by mail a few specimens of the Kelsey's Japan plum, a fruit just coming into notice in this State, and is considered here as of great promise. This plum is one of several varieties imported from Japan in 1876, by Mr. John Kelsey, of Berkeley, California, on whose place, it has fruited for four years, being the only one of the varieties imported which has proved a success. During this time it has proven to be a very prolific and regular bearer, and a very marketable fruit. It is a remarkably long keeper, making it valuable as a shipping fruit."

[These came before the letter. On opening the box it appeared to contain huge Stanwick nectarines. The weight of an average one was three and one-half ounces. The flesh was firm and the flavor admirable. If it prove adapted to our climate; there can be no doubt of the great value of the introduction.—Ed. G. M.]

JAMES VICK STRAWBERRY.—This new variety is credited with being an abundant bearer. A correspondent informs us that one plant on his grounds at Rochester yielded one hundred and eighty berries.

FORESTRY.

COMMUNICATIONS.

SILK CULTURE IN NEBRASKA.

BY G. J. CARPENTER.

At the present time much is being said and written in regard to silk culture. Indeed it is time for the subject to be agitated in the United States, for if once developed it will furnish lucrative employment at their homes for thousands of women and children, and add largely to the national wealth of the land.

Perhaps a few practical ideas in regard to the relative value of the different kinds of mulberry used for silk culture, from one who is engaged in the business, will be of interest to some of

your many readers. For the Northern States I place at the head the Russian, brought to this country about seven years ago by Russian Menonites. 1st. Because it is perfectly hardy and will thrive in any soil. 2d. It is a rapid grower. 3d. It produces large quantities of leaves, which furnish silk of the finest quality, 4th. It produces the best fruit of all the mulberries, and the greatest quantity of it. It can be grown to the height of forty feet, and from three to five feet in diameter, or can be sheared to any size you like. There are eleven varieties of the *Morus alba*, or white mulberry; among them is the *Morus Tartarica*, *Morus multicaulis*, *Morus Morretta*, *Morus japonica*, English white and others.

But if I were to plant two acres—it matters not in what part of the United States—one would be Russian; and then, if you tire of silk culture, its fine fruit will more than pay for your labor and expense of growing. Never plant the common American, or *Morus rubra* near the paper mulberry. And I would not advise planting *Morus nigra* for silk culture. In Europe and Asia, the mulberry is considered the most valuable of all trees, for it produces the most delicious fruit. Its timber is used in the arts and for fuel; the bark and fibre for paper, and its leaves produce the finest fabrics of silk. At some future time I will send you an article on the different kinds of silk worms.

[It seems proper to say to our readers that the species or type of all these varieties, the *Morus alba* is perfectly hardy over the greater part of the United States, if not over every part of it. and nobody who wishes to engage in silk culture will go wrong in planting seed of the *Morus alba*, or in growing trees of the ordinary *Morus alba* seed. It is quite likely that in time there will be found certain varieties of the white mulberry better adapted to some localities than others, just as we find some varieties of apples or grapes are; but this is only a question of the refinement of culture. People sometimes say of the grape, they had better have Concords or Clintons, than risk the coquettish dispositions of better varieties. And they will find it true of mulberry plants. If people had stuck to the common white mulberry,—seedling mulberries, instead of speculating in the “*multicaulis*” variety of it, with its large leaves and larger diseases, they would not have had to deplore the terrible ravages of disease among the silk worms which stopped the demand and destroyed the old “*Multicaulis* mania.” If people are wise they will let well enough alone, before getting into speculations about “improved varieties.”—Ed. G. M.]

EDITORIAL NOTES.

ARGUMENTS FOR TREE PLANTING.—It is a great gain to forestry to note that the weak arguments for forestry, which bring the whole subject into disrepute with persons of ordinary understanding, and leave the topic to be handled by visionaries, are being gradually laid aside. There are innumerable solid reasons why old forests should be judiciously cared for, and new ones planted, without resorting to bugaboos to frighten people

into what cool reason cannot sustain. A very good point is made by Mr. T. T. Lyon, in a note to the *Michigan Farmer* :

“When, in going about our State, we see so many farms stark and treeless, often with a lonesome house, and perchance a barn also, without a single tree or shrub, for either ornament or shelter; and so very few that evince thought and taste in this respect, it seemed obvious to us that our people need no encouragement to go forward in the thoughtless work of waste and destruction; but our earnest efforts, rather, to convince them that there is a possibility of carrying this process too far; and even that they may find actual profit, as well as pleasure and comfort to themselves, their families and their domestic animals, by sheltering their crops, their gardens and orchards, and their buildings as well, from the excessive force of the winds.”

FOREST FIRES.—At Montreal, the Committee on Forest Fires presented a report recommending, first, the reservation of all pine and spruce lands unfit for settlement for lumbering purposes exclusively; second, the prohibition of the burning of brush by settlers in the vicinity of fir trees during the months of May, June, September and October; third, the division of the timber country into districts, and the appointment of police, under a superintendent with magisterial powers, whose duty it shall be to detect and punish offenders, and provide for the extinguishment of fires; fourth, the cost of maintenance of this protection against fire might partially be met by the imposition of a moderate tax on those owning or leasing timber lands.

It must be apparent that when there is abundant dry and decaying material underneath large forest trees, there is nothing whatever in these resolutions calculated to prevent forest fires. The only feasible plan seems to be the one we have often suggested, namely, not to permit this material to remain. With this rotten and rotting material gone, we have absolute protection, and it thus becomes an arithmetical question whether it is cheaper to spend a few hundred thousand dollars for a certain protection, than lose millions on millions, and this, too, annually, not to say supporting thousands of office holders as police and superintendents, simply in the effort to “punish” those who may be “offenders,” whoever that may be, after a year or more of a pending lawsuit has proved them such; and provided always that such probable “offender” be caught at all.

ENCOURAGEMENT OF FORESTRY IN CANADA.—The Quebec Legislature, by an Act of 1882,

chap. xiii., offers a bonus of \$12 per acre to any one who will plant an acre of ground with trees and keep it well preserved. And no person is permitted to clear land by fire between July 1st and September 1st. It is also said an "arbor day" is to be instituted by the Dominion government.

FRAME BUILDINGS IN CITIES—Geo. May Powell suggests that shingle roofs and frame buildings should not be tolerated in closely built-up towns, and that this would, in some measure, lessen the demand on our forestry supplies.

FORESTS OF THE WABASH VALLEY.—Mr. Robert Ridgway says that in the Wabash Valley there are found no less than thirty-four species of large timber trees—that is to say, trees which sometimes reach 100 feet high.

INSECT BORERS IN THE YELLOW LOCUST.—It seems there is not a portion of the American Continent—at least in the Atlantic portion where the yellow locust is free from the borer. In Canada it seems as bad as further south, judging from a remark by Dr. Beadle in the Forestry Congress at Montreal, who said that the town of St. Catharines at one time had so many locust trees that people could feel their perfume even while approaching the town from a distance, but he did not think they could find a dozen now, as they had been destroyed by the borers and other insects.

FORESTRY IN CANADA.—Among the number of very interesting papers at the Forestry Congress was one by Mr. Marler, of Montreal, on the denu-

dation of forest lands. In the course of his remarks he said that the Province of Quebec is the principal territory from whence the mercantile lumber is drawn. "When I say mercantile lumber I speak of those trees which make up the lumber trade, and are taken from the following list: Oak, Elm, Ash, Birch, Walnut, Butternut, Hickory, Iron Wood, Maple, Basswood, White Birch, Beech, Poplar, Cherry, Balm of Gilead, Plane tree, Willow, Pine, Spruce, Larch, Cedar, Balsam, Hemlock,

"There are two large belts of timber land in the Province of Quebec, one on the south side of the St. Lawrence, the other and greater on the north side. The first extending from Gaspe, the Bay des Chaleurs, which divides it from New Brunswick; thence along the high lands on the boundary line until it strikes the head waters of the Connecticut river; thence along the line of 45° of north latitude to the St. Lawrence, by which it is bounded in front. This belt consists of about 30,000 square miles. The other from below the Saguenay to the Ottawa, and thence two hundred miles north of the St. Lawrence, and consists of about 120,000 square miles.

"Until a few years back these great belts of timber land were reached only by the streams running through them, and could only be devastated by the lumberman a few miles each side of these rivers, leaving large spaces untouched by the woodman's axe. But since twenty years this great belt has been intersected by some dozen railroads, which are now working into these reserves."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CALADIUM ESCULENTUM.—NYMPHÆA AMPLA.

BY PROF. S. B. BUCKLEY, AUSTIN, TEXAS.

It is supposed by many that the *Caladium esculentum* is a native of South-western Texas, from its abundance in and around the headwaters of the San Antonio, Comal and San Marcos rivers.

Lately, when at New Braunfels, I asked an

intelligent man—who had lived in that region about thirty years—if the *Caladium* was there indigenous. He said not; that he remembered when it was first planted at New Braunfels nearly thirty years ago, from whence it had spread by being transplanted at other places. It is a native of tropical and semi-tropical America. Last spring I saw it growing in the Lampazas springs of Mexico, about seventy five miles south west of Laredo.

In the Lampazas springs also grows the water

lily, *Nymphaea ampla*, with its flowers placed on long stems, rising six to twelve inches above the water. Its flowers are about three inches in diameter, white and very fragrant. Its large floating leaves are crenately mucronate; underneath, prominently veined and reddish purple. It would probably thrive in the waters of Southwestern Texas, and may yet be found there.

INSECTS IN PITCHERS OF NEPENTHES.

BY CHARLES CRUCKNELL. ST. LOUIS, MO.

I have just read your article on *Nepenthes rajah*. My attention has been particularly directed to the statement, "But no one appears to have noticed that the *Nepenthes* catch insects, and Darwin makes no mention of them among his 'Insectivorous Plants.'"

My impression is, that I examined at least fifty pitchers last season, and found insects in all of them. But to make sure of my position in this matter, I went into the stove house this morning and examined six pitchers taken promiscuously from six different plants which are suspended from the rafters of the house. The first pitcher (*N. levis*), contained eight dead flies. The second, a hybrid, had two centipedes in it. The third had three flies, a blue-bottle fly, two centipedes, an insect I did not recognize, and several mosquitoes. The remaining three had combinations of the above-named insects in them. They had evidently been drowned in the liquid secretion found in the bottom of the pitchers.

I have long since come to the conclusion that a moist atmosphere, with a temperature ranging from 85° to 100°, Fahrenheit, has more to do with the size of the pitchers than anything else.

IS THE KALMIA POISONOUS?

BY Q. A. LOBINGIER, STEUBENVILLE, OHIO.

I have been observing the controversy regarding the poisonous qualities of *Kalmia*. I confess I cannot understand why chemistry fails to show that it is a most deadly poison. My earliest recollections are coupled with the aid the boys of my native village gave to the men who drove cattle and sheep across the mountains before the days of railroads. Our village was at the base of the mountain, which was three miles to its summit, and the pike, lined on either side by dense thickets of *Kalmia*—the especial dread of sheep drovers. The boys of the village were employed by the drovers to

assist in keeping the flocks on the pike until the summit of the mountain was reached.

I doubt if a large flock was ever driven across it without the loss of several from eating *Kalmia*. I have seen them lie down to die before they could be driven from the thickets into the highway. My grandfather kept large flocks of sheep, and I can remember one occasion when a deep snow fell leaving nothing green but the *Kalmia*, and the flock could not be found until late the following day (being in a very large range). When we found them a very large portion of the flock were dead with the *Kalmia* leaves in their mouths. They were found in groups about *Kalmia* plants—in one case five died just where they ate. Within two years my partner in the fruit farm had a valuable heifer in company with a small flock of sheep in a range where he had directed the hired men to cut out all the *Kalmia*. In a few places the *Kalmia* had sprouted up, and after a fall of snow looked temptingly green. The heifer was found dead with portions of the *Kalmia* protruding from her mouth. I could multiply these instances. But it seems to me a direct experiment would convince the most skeptical. Any one willing to sacrifice a sheep by allowing it to eat *Kalmia* leaves, could have it demonstrated to his satisfaction that it is a poison, chemistry to the contrary notwithstanding.

Sheep accustomed to the sight of it were never known to eat it except when the ground was covered with snow; but flocks driven by it from the western country, would eat it if permitted.

INFLUENCE OF POLLEN IN CROSS-FERTILIZING.

BY E. S. CARMAN, EDITOR OF RURAL NEW YORKER.

"It is well known in hybridizing, that the female parent may be exactly reproduced though under the influence of pollen very unlike its own. This was proved especially by the experience of Mr. Francis Parkman among lilies; *Lilium Parkmanni* being the only remarkable departure from the female type. There is probably no reason why the inverse might not be true—that is the female wholly reproducing the male form, and this experience with the rose points that way.—Ed. G. M."

The above, from *GARDENER'S MONTHLY*, 1880, page 311, reminds me of a bit of my own experience which is given below from the *Rural New Yorker*, of August 12, page 587.

"In this connection we beg to narrate a bit of experience which may interest botanists who have been engaged in crossing flowers. Four years ago we raised several plants from the seeds

of Hibiscus Moscheutos, the Swamp Rose Mallow. As soon as the buds matured sufficiently to bear it, the petals were unfolded and the anthers very carefully cut off and brushed out with a camel's-hair brush while yet they were quite green. Pollen from the Rose of Sharon (*Hibiscus Syriacus*) in liberal quantities was a little later applied to the stigmas. Not less than fifty buds were so treated, while every other bud not so emasculated was cut off as soon as formed. Now it should appear that any seeds that formed in the manipulated flowers, were the result of hybridization between *H. Moscheutos* and *H. Syriacus*. Seeds matured so abundantly that the work was repeated with, if possible, additional care, only to give the same results. From these seeds we raised about one hundred plants, in the house the following winter, about twenty-five of which were planted out of doors in the spring. All of them bloomed, but neither in bloom, stem or in leaf was there or is there (we have still a dozen of the plants) the slightest variation from *Hibiscus Moscheutos*."

During two seasons past, I have spent much time in crossing wheats. I have been very careful to remove the three anthers from each flower while yet they were immature. Whenever they (the anthers) showed a tint of yellow, an evidence of approaching maturity, I have destroyed the anthers. Nevertheless seventy-five per cent. of the heads from plants raised from this crossed seed could not be distinguished from those of the mother plant.

I trouble you in this matter to give some evidence of the potency of the female over the male parent.

EDITORIAL NOTES.

THE HYBRID COTTON.—Some months since we made note of a reported variety of cotton raised between the okra and true cotton. This news was thought important enough to be sent to every leading paper through the medium of the Associated Press dispatches, a reputable organization for collecting news, or it would not have been thought worth repeating in these pages. As then said in our note, it is not impossible that a hybrid might be obtained between two genera as closely related as these. In *Gesneraceæ* such genera have become badly mixed. In this case it was simply a question of fact against an improbability. We wrote to the Mr. Subers, of Macon, Ga., for a sample of his hybrid cotton, and such information about the manner of his procedure in crossing, as we could have for our readers. No answer has been received, and we feel bound, therefore, to suppose that the story

is nonsense, and the Associated Press owes its reputation to inquire into the imposition practiced on it. We would suggest that that "news" agent be changed.

DEATH AND BIRTH OF NEW SPECIES OF PLANTS.

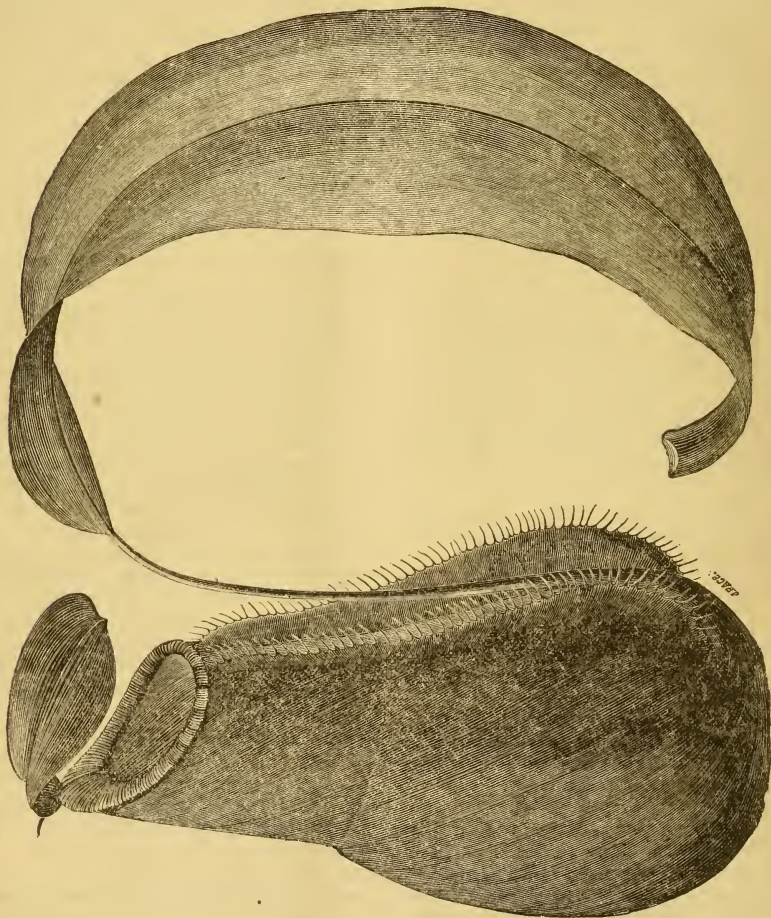
—The *Independent* says: "Those who contend for the continual appearance of new species on the earth derive much aid in their argument from the evident continual disappearance of old ones. It would not be consistent with our idea of the new creations unless it was evident that they succeeded extinct forms; nor is it in harmony with all we know of nature to conceive of continual extinction unless we admit new forms appear to continue the work of nature. Among plants it is not uncommon to find some species so rare that but a few specimens are known to exist. These are often found in localities wide apart, and, as they must have in former times been more closely connected, but show no indications of connections now, they are regarded as species on the highway to the grave. In the Southern Alleghany regions are many of these disappearing forms, and there are quite a number in the North. *Corema Conradii*, a curious plant, with the habit of an *Erica*, but belonging to the order *Empetraceæ*, is an illustration. Turrey and Knieskern found it in New Jersey, but it has not been since seen where they discovered it. It was also once found on Long Island, but has disappeared from there. A few plants have been found at Cape Cod, at Bath in Maine, and in Newfoundland. No doubt there may be a few more isolated places where it may yet be found. Recently Mr. Aubrey H. Smith, a Philadelphia botanist, has announced the discovery of a few plants in the Palmaghatt Pass, of the Shawangunk Mountains, in New York. The wide distribution of the localities show that the plant in the long ages past had a wide range, and its disappearance in the intervening spaces was wholly the work of natural agencies, and probably long before even the Indian existed on this continent."

NEPENTHES MADAGASCARIENSIS.—In view of the lesson on *Nepenthes* given in our last, it seems that an illustration of another, to follow it, showing in what respects one species may differ from another, may be very useful. The present one was recently introduced by Messrs. Veitch, from Madagascar, through Mr. Curtis. Occurring thus at the extreme western limit of the *Nepenthes* range, it is found to possess characters in its

leaves and pitchers which clearly distinguish it from the other species and hybrids to cultivation, and render it an important acquisition in this remarkable class of plants.

The moderate growth of the young plants seem to indicate that the species is of rather

The pitchers, which are from six to eight inches long, are extremely ornamental and striking on account of the richness of their coloration, being the deepest colored known, and rivalling in this respect the magnificent *N. sanguinea*. They are furnished with two hand-



NEPENTHES MADAGASCARIENSIS.

dwarf habit. The leaves are smaller than those of most of the large-pitched kinds, being but from five to seven inches long by one and a half in breadth, tapering at the base into a short, broad amplexicaul stalk, and narrowing gradually into an acute lance-shaped point.

some fringed wings in front, and an oblong lid suspended (in the young pitchers) horizontally over the mouth.

THE GIANT TREE OF CALIFORNIA.—As is now tolerably well known, the 'mammoth tree of California' was at first supposed to be a new

genus, and named *Washingtonia* by Dr. Kellogg. Lindley also supposed it to be distinct, and either ignorant of or ignoring Kellogg, named the supposed new genus *Wellingtonia*. But neither of these determinations stood the test of botanical rules, and the plant was finally referred to a genus already established, namely, *Sequoia*. Dr. Kellogg now claims, at least, priority for his common name, Washington cedar. Unfortunately, popular names to be popular must be adopted by the people, and the people in their adoptions know no rule of priority, or any rule but popular fancy. However, it is but just to Dr. Kellogg, one of the most eminent and earnest workers in the early field of California botany, that he should have all due credit for his work. This is what he has to say about its early name, and his connection with the plant's discovery:

"As historic truth demands it, it is but just to say, I, myself, took Mr. Lobb to the California Academy of Sciences, and showed him the first specimens he ever saw of this marvelous, now world renowned, Washington cedar, which was so named by me before he ever saw the tree. The fact is well known to the old charter members of the Academy, several of whom are still living. It is, therefore, the earliest among common names, and claims precedence, by all courtesy, in point of time, as also in appropriateness of honor. Our relations to its earliest identification we leave to the historian of the future."

ORIGIN OF THE TREELESS PRAIRIES.—In an address before the Academy of Natural Sciences, of Philadelphia, a couple of years ago, Mr. Thos. Meehan pointed out that there was no known agent but fire which could prevent a border line of forests from gradually spreading over the grassy prairies; that only for the annual Indian fires the great prairies of the West would long ages ago have been impenetrable forests. This view seems to be coming into general favor. In a recent issue of the "Proceedings of the National Museum," Mr. Robert Ridgeway says:

"That the numerous small prairies which were common in the Wabash Basin at the time of its first settlement have become transformed into woodland, and that, owing to this gradual change of prairie to forest, the actual area of forest in Wabash and the adjoining counties in Illinois is greater than fifty years ago. Extensive woods of oak and hickory more than eighty feet high, and with trunks nearly two feet through, are now growing on what was open prairie within the memory of some of the present owners of the land. This is interesting as a slight indication of the solution of the mystery which involves the origin of the prairies; while the rapidity with which these new woods have sprung up shows that the reproduction of our

failing forests can be accomplished in a shorter time than is generally supposed, if proper consideration and attention can only be given to the subject."

SCRAPS AND QUERIES.

TRUFFLES.—A correspondent refers to statements made in various "local histories" of the truffle being found in the United States, and asks whether we know of such instances. In reply, we can only say, that we have often met with such statements, but they always seem to be founded on mere "hear-say" evidence, which, without other confirmation, is not satisfactory. On the whole, it is safest to believe that the truffle has not been found in the United States.

SHEEP AND KALMIA.—A Texas sheep raiser says: "I would be willing to waste a sheep on you, 'pizen' it with kalmia leaves and then ship it to you; but then I can't be certain that you won't declare that, though it's dead and the leaves in its stomach, you are 'not convinced' that I did not feed it on strychnia or some other vile thing. Well, it's a mystery, and if I had the same reason for thinking as you do, and did *not* love the reasons I have for *my* opinion, I should change it."

[It seems necessary to repeat that we have never said sheep are not sometimes killed by kalmia and other leaves. Our point is that the kalmia is not a poisonous plant, or chemists would find the poison in it.—Ed. G. M.]

USE FOR YUCCA LEAVES.—"H." referring probably to Texas, says: "I can add another use for yucca leaves. The early settlers, the buffalo hunters and Indians in Northern Texas use it for hanging up their meat to dry; the sharp point obviating the use of a knife. The hunters salt the choicest parts of the buffalo in a hole in the ground which they line with hides, then run a yucca leaf through and hang over the camp fire to smoke."

[It might be worth while to grow yucca around fishing stations for stringing fish. Looking on at a boatload of weak fish and croakers recently, it occurred to the writer that there was a great deal of time lost in punching the little gills with a pointed stick in order to string them into dozens and half-dozens. A yucca leaf would serve at once for needle and string. But perhaps fishermen have no great need to save time.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

THE ROMANCE OF HERBACEA.

BY WM. T. HARDING, MOUNT HOLLY, N. J.

I feel impelled to say how much Mr. Sutherland's remarks—or rather as corrected, Mr. Manning's—in the September MONTHLY, coincide with my own views regarding "Hardy Herbaceous Plants for general cultivation." And with him I much regret their delightful presence is not with us, in this year of grace, as they used to be in days gone by.

Vivid recollections of the old-fashioned herbaceous flower borders, as they appeared in multiform beauty fifty years ago, are as visible in ideality now, as they were then in reality. But of these once gay, odorous beauties, we may painfully ask: Where are they? as even their names are seldom, or never, mentioned now. Surely their tender, humanizing mission is not ended yet. All moralists, philanthropists, or intelligent persons who take a warm interest in the general welfare of their fellow creatures, cheerfully admit that flowers have, besides their great importance in the economy of nature, an æsthetic and happy influence on the social affairs of mankind "in the pursuits of life, health and happiness."

So just and true to nature is George Eliot's delineation of hardy perennials, or herbaceous plants, that her admirers will remember her description in "Adam Bede," of "a once well-tended kitchen garden of a manor house." It is a choice bit of word painting, worthy of Ruskin in his best efforts. It bore traces of better days, although then sadly neglected "in that leafy, flowery, bushy time, * * * there were the tall holly-hocks beginning to flower and dazzle the eye with their pink, white, and yellow," &c., which to the mind's eye seems as if they were actually present. And the inimitable, incomparable Sir Walter Scott, when "forging the hand-writing of nature," no writer was more expert. And how charmingly he lays before his enraptured readers quaint and pleasant scenes around old ancestral halls, baronial parks, and pleasure grounds, or antique monastic gardens. For instance, * * * "the enumeration of plants, herbs and shrubs, which his reverend conductor pointed out to him; of which this

was choice, because of prime use in medicine; and that more choice for yielding a rare flavor to potage; and a third choicest of all, because possessed of no merit but its extreme scarcity." In these ancient places our forefathers proudly displayed their love of herbaceous plants, and as skilled herbalists, their knowledge of medicinal herbs, or "physic plants," which were generally arranged in long beds, or parallel borders alongside of each other, in strict accordance with the ways of the simple, goodly folk of yesteryear.

But as I am writing in the year '82, I must come back to the time and no longer diverge from the blessed handbringers as they are, of the advent of smiling spring, who come with the first peep of the cheery Snowdrop, Crocus, Saxifraga oppositifolia, Anemone Appenina, Adonis vernalis, Arabis Alpina, Primrose and Hyacinth, with other early flowers, whose coy glances at one another seem like a happy recognition and welcome as each floral sister returns to the vernal scene. And afterwards, through the changing seasons of the year, what a galaxy of superb loveliness seems to spring up where the benign footsteps of "Flora" has touched, until chilly "Old Boreas," with his frosty fingers, plucks the last Helleborus niger, or Christmas rose, in the wintry snows.

Now this is no garish picture of an imaginary scene, but is in reality, simply "holding up the mirror to nature," so that all may see how exquisitely beautiful are the fair features of flowers.

Perhaps it may be thought of what I have said about the subject, that the couleur de rose has been too lavishly used. But you, Mr. Editor, with many of the MONTHLY's kind readers, will know the writer's enthusiastic admiration for herbaceous plants has not carried him in their description to the verge of exaggeration.

To give a list of a moderate number would be a pleasant task for the writer. But as Mr. Manning hints at so doing, I will not attempt it. Assured by the editor of his abilities in that line, it would seem invidious to trespass on his chosen ground; so will leave it for him to do in his own perspicuous manner. Fully indorsing all he says about it, I would advise a re-perusal of his excellent article; and if, after so doing, any one should decide to follow his suggestions,

then personally consult him or any other intelligent florist about the supply of plants, &c.; and he, or they, will gladly furnish their patrons—who delight in causing two flowers to grow where but one grew before—with proper instructions.

HISTORY OF THE PEACH IN AMERICA.

BY HON. LORIN BLODGETT, PHILADELPHIA.

I have for many years believed the American peach to be indigenous, having seen it growing in the woodlands of Virginia and Maryland, and showing its blossoms in the spring among the ordinary trees at the height of thirty or forty feet. And I have now come upon a striking statement of William Penn, in confirmation of this view, found in his letter to his Friends of 16th August, 1683, which I transcribe.

In paragraph V. of this letter, he says: "The fruits that I find in the woods are white and black mulberry, chestnut, walnut, plumbs, strawberries, cranberries, hurtleberries and grapes of divers sorts. * * * Here are also peaches, and very good and in great quantities, not an Indian plantation without them; but whether naturally here at first I know not. However, one may have them by bushels for very little; they make a pleasant drink, and, I think, not inferior to any peach in England, except the true Newington."

As Penn says, in the same letter, "the first planters here were the Dutch, and after them the Swedes and Finns," it does not appear probable that the cold north of Europe could easily have distributed here this fruit, of Persian origin, in such abundance as to be "on every Indian plantation" in 1682. I am not aware that any one has written up the matter, and have not at this moment time to examine the old narratives. I don't know why the peach should not as reasonably be native here as the mulberry or strawberry, the walnut or the chestnut.

I have trees in my garden that show every evidence of the qualities ascribed to indigenous growths. One peach tree, sixteen years of age, is thirty-eight inches in circumference at two to four feet from the surface, with branches five feet from the ground twenty-four inches in circumference, and it is as hardy and robust as a honey locust standing twenty feet away. I have still twenty-five trees of various ages, all seedlings, from twelve to sixteen years from the seed, producing large crops of valuable fruit every year.

I have tried to follow the example of the good Indians whom Penn in this letter describes with much enthusiasm, and I have been rewarded, as they were, by bushels of fine peaches every year for the last fourteen. They come up as seedlings with freedom at all times, and more than half of all I have grown have produced valuable fruit, many of them of superior character, as you have seen.

[This very interesting note from Mr. Blodgett suggests to us to express regret that nothing has been done to any extent to trace from authentic records the history of our fruits on this continent. The authors of all our works on fruits content themselves with mere practical details. One who would go into this matter with the intelligent zeal of the genuine historian, would render a great service to his country.]

As regards the particular question raised by Mr. B., namely, the indigenous character of the peach, there are botanical reasons, which need not be given here, which would leave scarcely a bare probability that such could be the case. There is not a botanist, careful as they usually are with opinions, who would hesitate to say from certain known facts that it was not possible for the peach to be indigenous to the American continent. But we need not dwell on this point, because there is more reason for the conjecture that the Indians obtained the peach from the white man. It must not be forgotten that for a hundred years before this letter of Penn's was written, various colonies had started from the Old World and settled in different places along the coast from what is now North Carolina to Massachusetts. The seeds of the fruits, grains and vegetables of the Old World were brought with them; and though we have before us no specific statement that they brought peach stones, why should they not? The Dutch and the Swedes had numerous settlements on both sides of the Delaware for a quarter of a century before Penn started his colony—one of them, Warner, having a large garden and farm no less than four miles from the Delaware, over in what is now known as West Philadelphia. Reliable records place a population of at least 3,000 when William Penn arrived. As the peach will reproduce itself in two or three years from the seed, there was plenty of time for the plant to have spread among the Indians even from these settlers, to say nothing of the sources which existed elsewhere. Champlain's party, which arrived in 1608, is known to have given the In-

dian the apple, and why not the peach? But there is a letter in existence written a year before this one quoted from Penn, by a "Jerseyman," Mahlon Stacy, and he remarks: "We have peaches by the cart load, and the Indians bring us seven or eight fat bucks a day." The wording of this would indicate that "we," that is, the settlers, had the peach trees and the Indians the deer. No doubt the Indians also cultivated them, for the leaders, or "Sachems," had plantations, in which they grew many things, and they lived in comparative peace with the white settlers. How rapidly the peach was propagated by the early settlers may be inferred from the statement of Oldmixon, that the Germantown road, then but a cart road or trail, a length of at least twelve miles, was lined with peach trees along its whole length. This was in 1700. No doubt it early escaped from cultivation, and wild trees may have been found in some abundance, but as to actual indiginity it must be concluded the facts are against it.

It is, however, a very interesting topic, and we shall be very glad to have notes bearing on the early history of the peach or any other fruit.

It may be noted that in the extract made by Mr. Blodgett, the white and black mulberries are named. These, though found in the woods, are evidently forms of *Morus alba*, found wild in the woods now as in Penn's time, and must have been introduced in early times as well as the peach, as no one would regard them as indigenous any more than the peach.—Ed. G. M.]

FRUITING OF A MALE TREE OF CEPHALOTAXUS FORTUNII.

BY P. J. BERCKMANS, AUGUSTA, GA.

I send you by this mail a few fruits of *Cephalotaxus Fortunei*. Although I have grown this species for twenty-five years past, this is the first time during that period of fruit being produced.

My object in sending you this fruit is to show there is a greater variation in the sex of the flowers of some trees than is generally supposed. Siebold describes the genus *Cephalotaxus* as dioecious. For many years I thought this correct, as my tree produced only male flowers. This year a large proportion of the flowers were female, and the result is a heavy crop of plum-like fruit, giving a beautiful appearance to the tree.

My specimen trees were received from Belgium in 1853; the female variety died after a

couple of years planting, and those received since are planted at a considerable distance from the male tree. The female appears in every respect identical with *Cephalotaxus drupacea*. The male tree, so called, has certainly proved to be monoecious this year, and I believe, therefore, that the word dioecious cannot altogether be relied upon as regards this variety.

Some seedling trees of Japanese persimmon produced nothing but male flowers during six years. The seventh, about one female flower to three hundred male. The eighth year, one female flower to about one hundred male, showing a gradual change in the inflorescence, and as the trees became older they became fruitful.

[This very interesting note, coming so soon after the discovery, that *Salisburia*, or the Ginko tree, is probably monoecious, will leave few, if any, truly dioecious genera among coniferæ. In regard to the appearance of the male flowers, it is generally the case that they appear a year or several years before the appearance of the female flowers although branches which bear female flowers, as they become weakened by age, bear male flowers only! This appears to be a general law, and it might therefore be expected that a tree, many years male, and which would thus give some ground for regarding its species as dioecious, might become female.]

Another point is that Prof. Karl Koch believed *Cephalotaxus Fortunei* to be but a barren or male form of *C. drupacea*, though the last seems to be the only form in Japan, while the other is credited to China. The leaves and habit of the two are different, but this might be but sexual characters, which often extend to foliage and habit as well as to floral characters. But we have often seen the fruit of *C. drupacea*, especially on the grounds of A. D. Brown, Esq., of Princeton, and they are much larger and differently formed from those of Mr. Berckmans, though not having both before us the exact characters cannot be noted. If Mr. Berckmans finds the foliaceous character still different in the fruiting specimens of each, the fact will go far towards confirming the tendency of botanical belief, that the two are distinct species.—Ed. G. M.]

EDITORIAL NOTES.

INTELLIGENT CORRESPONDENTS who read, will find the following "words to the wise" sufficient. Those who "run" but don't "read," will

pass the following three pearls unheeded, according to the proverb:

All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

SILK CULTURE IN THE SOUTH.—Col. M. B. Hillyard, who did much to aid in the founding of McComb City, in Mississippi, and has been so closely identified with the introduction of numerous Southern industries, has for some time past been successfully engaged in the encouragement of silk culture. Few men have labored more earnestly or more successfully in restoring to the South prosperity through industrial enterprises than Col. Hillyard.

TESTIMONIAL TO THE KIEFFER PEAR.—In a prominent catalogue just issued we read:

"I have eaten fruit of Kieffer's Hybrid that was equal in luscious richness to any pear I ever ate. I have never tasted a bad or indifferent pear of this kind. Every one was delicious. I regard it as the most wonderful production of the age, and the beginning of a new era in pear culture. As yet no case of blight on Kieffer has been known.' Also, 'Imagine the old Sand pear tree with its vigorous growth and ornamental foliage, loaded with pears as beautiful as the finest Flemish Beauties, and you can form some faint idea of the wonderful appearance of this tree.'—*Thomas Meehan, Editor Gardener's Monthly.*"

If the date had been given to the above, there could be no cause to comment; but our readers know that during the few past years the giver of that opinion then, has since recorded cases of absolutely worthless Kieffer pears, and also instances where the tree has suffered severely from the genuine fire-blight. "As yet," in that statement, was not intended to mean 1882.

KENILWORTH IVY.—We note by a contemporary that this plant "is not an ivy, but the *Linaria cymbalaria* of botanists," and that "its proper English name is *Creeping Sarah*." Perhaps it is no more a "Sarah" than an "ivy"—but it seems hardly worth while to dispute about these things.

HIRAM SIBLEY.—The head of the seed-house of Hiram Sibley & Co, and which is the successor of the former house of Briggs Brothers, is one of

the representative men of whom America may well be proud. He is an example for young men to follow. He early formed the resolution to make himself as useful as possible to those who should engage his services, and he fortunately had the judgment to perceive that the way to be the most useful was to thoroughly understand all about the work he was set to do. It cannot be too often impressed on the youth, that this sort of integrity and ability is worth thousands of dollars and the best university education, as a start in life. Multitudes of successful Americans owe their success to these principles alone, while numbers with the best scholastic and pecuniary advantages have sunk to poverty and uselessness. Sibley came from North Adams to Western New York when he was but sixteen years of age. He went sawing wood as he traveled, and doing anything that would make an honest living. On the road he offered to mend a shoe, and was so successful that the shoemaker employed him. At twenty-one he was making carding machines. About this time he was what some boys would call "lucky," that is to say, some one let him have what money he needed to start the machine business. But the "luck" only came because the lender saw that the boy's "word was his bond," and that his head and his hands were equal to his word. It is the "luck" that any boy may have. There are hundreds of people with money who are only too glad to help young men along when it is evident they are helping themselves at the same time. From that time to this—now in his seventy-sixth year—his course has been successful. The money he has given away to good purposes may perhaps be counted by millions; of which nearly a quarter of a million went to two institutions alone, namely, the Universities of Rochester and Cornell.

THE FARM JOURNAL.—We could not forbear enjoying the little joke which the *Farm Journal* suggested when referring to a paper by the writer of this to the *Germantown Telegraph*, "that there were some persons who loved to write in order to hear themselves talk." It was not our funeral, and we thought we might laugh. As, however, our contemporary seems a little hurt at the liberty we took with it, in justice we append the explanation it offers:

"Judging from an item in the September number, the GARDENER'S MONTHLY harbors the thought that the *Farm Journal* is unfriendly to it, and to its editor. Such is not the case. We entertain feelings of the highest respect for

Thomas Meehan, and have not, as he implies, made any uncivil flings at him, knowingly, except possibly in one instance, and we regret having done that. He may be unjust to us; we shall not be to him; and this is all we have to say in the matter."

EXPRESS PACKAGES FOR THE EDITOR.—One would suppose that common sense would suggest that when fruit or other matter is sent for an editor's opinion, the packages would be prepaid. It is surprising how many overlook this little piece of justice. In protection to the editor's purse, all such packages have been refused the past few years. Once in a while, perhaps from the editor's temporary absence, or some other favorable opportunity, a box slips in, and here we are now penning this note, smarting under a dollar gone for the rottenest mass of rubbish that ever came before us. We feel very much like publishing the name of the correspondent, only that it would look spiteful, and as an editor, above all other men, is supposed to have "charity to all," we content ourselves with the hope that nobody will do it again.

ELIHU HALL.—Botany loses an eminent worker in the death of Elihu Hall, which occurred at his home near Athens, Illinois, on the 24th of September last. He had suffered for a long time from consumption, and his death was not unexpected by his friends. He leaves a widow and three grown children. He was a Virginian born on the 4th of June, 1822, but in 1829 was brought by his parents to the spot where he died.

His devotion to botany began a few years before the rebellion. In 1862, when it was very difficult and dangerous to travel through the Rocky Mountains, he made an extended exploration through the mountain region of Colorado, in company of Harbour, which expedition resulted in the discovery of many new species, and added largely to our knowledge of plants already identified. Subsequently he made a botanical expedition to little known portions of Texas and to Oregon, both of which resulted in great additions to knowledge. A number of Rocky Mountain plants bear his name. Dr. Gray has named for him *Seseli Hallii*, *Pentstemon Hallii*, *Astragalus Hallii* and *Heuchera Hallii*. Englemann gives him one of the rushes, *Juncus Hallii*; Olney a sedge grass, *Carex Hallii*, and Lesquereux two mosses, *Campylopus Hallii* and *Orthotrichum Hallii*.

During the later years of ill health he derived great pleasure from work on his botanical and

conchological collections, and he had much consolation in his last days by the reflection that though not gifted with the strength of other men, he had performed to the best of his ability the work given him by his Maker to do; and that to some extent at least the world had benefited by the life which he led.

EDWARD J. HOOPER.—The death of this gentleman in San Francisco, the first week of September, is recorded in the California papers. He was the author of the "Western Fruit-Book," and a well-known newspaper writer on rural topics. He was a native of England, but settled early in the West, removing to California in 1870. He was eighty years old when he died, with the satisfaction of having spent a very useful life, and that he would leave an excellent reputation behind him.

JOSEPH SHERFY.—To all familiar with the details of the fateful battle of Gettysburg, Sherfy's peach orchard is a familiar name. We have now to record the death of the owner of this sacred spot whereon the earlier struggles of the eventful four days' fight came near making it the grave of the Republic. It is, however, with his career as a fruit grower and useful citizen chiefly, that the credit is due of making peach culture one of the solid institutions of Southern Pennsylvania. He took a sterile piece of land, and by intelligent good sense, made it one of the richest and most profitable farms in the State. His example alone, as an agriculturist and horticulturist, has had a wonderful influence on that section of the State, and has been worth tons of essays and preaching without end. And yet he was a preacher as well as an eminent practitioner. In what is known as the German Baptist or Dunker denomination, he was known as a clergyman; and as a director of the public schools led the advance in everything which contributed to the advance of education. At one of the meetings of the State Horticultural Association the writer of this brief sketch first made his acquaintance. Though his gray hair and features generally, indicated a close verging on threescore and ten, he attracted general attention by his tall, strong and well-proportioned form. He was regarded by strangers as a plain, plodding farmer, but when he was, by invitation, brought out to give his experience on peach culture, his well-chosen and chaste language, and clear and fluent exposition of his ideas were great surprises to all. We have, at this writing,

no note of his exact age; but he would probably have been able, from his remarkable vigor, to have given many more years of usefulness to those around him, but for an attack of the typhoid fever, which this season has carried away so many of our eminent men. His death occurred on the 2d of October.

AMERICAN JOURNAL OF FORESTRY.—A monthly journal of forestry. Edited by Dr. Franklin B. Hough. The October—the first number—has just appeared. As we noted when the "American" *Gardener's Chronicle*, the "American" *Journal of Horticulture*, and the "American" many other magazines appeared, it would seem better to have a wholly American name to an American magazine, than to copy an English name and merely add "American" to it. It is bad enough when quoting an English contemporary to have to use so long a name as "Journal of Forestry" to give credit to, but "American Journal of Forestry" is certainly far too long for a quotable name. However, this is a matter of taste, and few will want to quarrel with a name when the

work itself worthily represents an excellent cause. The leading chapters in the number before us are on "Forestry in Michigan," "Larch Wood," "Forestry of the future," "Forest Fires," and a good report of the forest congress at Cincinnati. Besides these chapters, there is a column for "Miscellany," which furnishes opportunity for editorial comment on passing events relating to forestry.

The new venture will have the support and best wishes of all interested in the progress of American forestry. * It may not be out of place here to note that in the review of Dr. Hough's *Elements of Forestry*, a remark was made as to the inaccuracy of one of the cuts used. The cut is inaccurate, but not in some of the points referred to. The writer of the review would have pointed out more particularly in this number the error he fell into, but some cuts, showing the exact character of one and two-year-old wood in a piece of oak, could not be completed in time for such notice, and the correction must be deferred for the present.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

THE PENNSYLVANIA HORTICULTURAL SOCIETY.—This time-honored institution resumed its annual exhibitions this season, they having been, as our readers know, suspended by the burning of the hall. It was, unfortunately, caught in the formidable equinoctial storm, and hence the attendance of visitors was much below the numbers of former occasions.

There were excellent exhibits of cut flowers, fruits and pot flowers, vegetables being comparatively scarce. Hot-house grapes from Mr. Huster, gardener to Mrs. Heyl, reminded the visitor of the old times when Philadelphia outdid the whole Union in this interesting branch of gardening. As, however, the weights of the bunches were not attached, we must be content for the reader to take his own meaning from the term "very fine." The same remark must apply to the pears and peaches of Edwin Satterthwaite, "very fine" being all that we have the op-

portunity to say about them. The peaches were indeed more numerous in varieties, and seemingly of better quality than usual from growers near Philadelphia, and as far as could be gathered from those who have some idea of Mr. Satterthwaite's business success in peach growing, it proves the success of Mr. Rutter's position, that there is more profit in growing peaches in comparatively dear land, near one's market, than to grow them in cheap lands where railroads take all you get for transportation charges. Some interesting comparisons might also be made in the productiveness of varieties. Here, before the visitor, were some noble specimens of the Susquehanna peach, and some fine but not near as large specimens of the Crawford's Late. Judges, no doubt, would award the premium to the Susquehanna, and the public would applaud the decision; but it would be a question with the fruit grower whether, with all its size, the Crawford's Late would not beat it by the far greater quantity it would produce. We hope to see the day when some such infor-

mation as this can be given with these magnificent exhibits. The apple exhibit of Samuel Noble was equally "very fine." Friend Noble was explaining to a visitor, as the reporter passed by, that there was an increasing demand for good table apples for late summer, as well as apples for pies and sauce, the general impression being that there is no profit in table apples except for winter use. And he gave it as his opinion that the Summer Rambo, which he exhibited, was one of the best for this purpose. The Cornell's Fancy, he thought, would beat it in beauty, and was very saleable, but the Summer Rambo was his choice. On the table among the fruits were some fine leaves and flowers of the beautiful scarlet water lily, *Nymphaea rubra*, and the tiny *N. pumila*, which has a flower no larger than a hickory nut. This probably came from Mr. Sturtevant, of Bordentown, N. J.; if not, we hope the real exhibitor will forgive the guess. The names of exhibitors are kept from the judges, and are not attached till after they have done their work—perhaps an advantage to them, but not so good for the visitor who loves to go early, before the cut flowers have lost their freshened faces.

Speaking of cut flowers, it is noticeable how great is the change in designs since the older times of the society. The work is admirably done. It seems impossible for taste or elegance to arrange flowers more artistically than our florists now do. But somehow it does not seem just the thing that we should be limited to anchors, harps, crowns, pillows and "gates-ajar," and absurd as the wish may seem, we almost longed for the "big whales," "Great Easterns," and other curious articles that constituted the "cut flower designs" of the olden time. One good friend, whose name had not yet been attached, and whose number has been forgotten, attempted a table design of roses. It must have looked very pretty when fresh, but the bunches of roses being fastened to pegs instead of placed in water vials, were completely withered, though only on the second day's exhibition. It was appropriately placed among the funeral designs, as the flowers which composed it were touchingly suggestive of the grave.

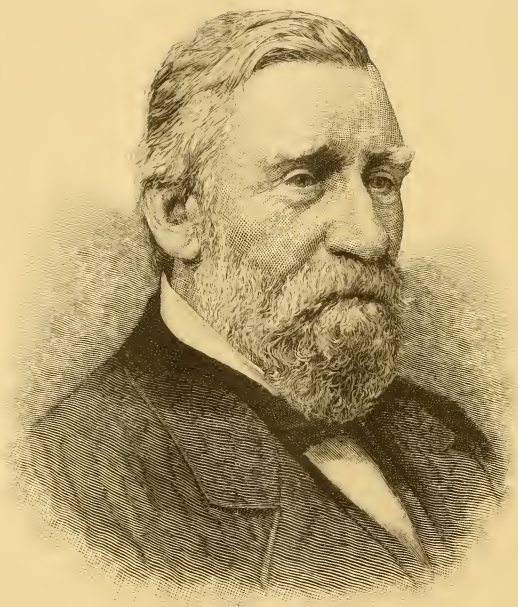
A very fine collection of plants, as they were not for competition, fortunately had the owner's name as well as the number on them. These were from Mr. Warne, gardener to Clarence H. Clark, Esq. Though somewhat prejudiced against leaf-plants, from that universal prevalence to the

almost extinction of the gay flowering plants of the olden time, praise must be accorded to the stocky, well grown specimens of the various forms of veined and marbled *Marantas*. They will long be popular house plants. There was another fine collection, probably from Mr. Joyce, gardener to Mr. Baldwin. Mr. Joyce had a remarkably fine specimen of the Holy Ghost orchid of Panama. "Remarkably fine" here means seven spikes. He says it only flowers on alternate years. It was at least a great pleasure to find one collection of pretty flowering things in a collection of *Gloxinias*, which we believe came from Mr. Henry A. Dreer. Much as these have been improved of late years, probably few know the extent of the improvement. Spotted, pencilled, and of innumerable-shades of color, they are among the most attractive of summer blooming exotics.

Space will not permit of further notes. We can only say that President Schaffer, Secretary Harrison, Superintendent Andrews and the committee, deserve the thanks of Philadelphians for the very great efforts to re-introduce the wonderful attractions of the olden time. The exhibits were not what they might be if they had the full support of the many amateur ladies and gentlemen who abound about the city, and who, in the old times, did so much—but still there was room for encouragement, and for the hope that the old enthusiastic times would yet come again.

THE MISSISSIPPI VALLEY HORTICULTURAL SOCIETY.—The third annual meeting was held in Chicago on September 6th. The meeting being called when everybody is at home at local shows or fruit gathering, was not well attended. It was decided not to have the next meeting till January, when it will be held in New Orleans.

PENNSYLVANIA STATE HORTICULTURAL SOCIETY.—We have notice that the next meeting of this body, formerly the "Fruit Growers' Society," will be held in Harrisburg on the third Wednesday in January, 1883. George D. Stitzel, Reading, Pa., is President, and E. B. Engle, Marietta, Secretary. We feel under obligations to Mr. Engle for this early notice. It is not uncommon to have complaints that no notice has been taken of some societies' meetings. Our magazine should appear on the reader's table about the 1st of each month; but its contents must go through the editor's hands at least a month before. We are glad to do all we can for horticultural societies if the officers will give us information in good time.



Patrick Barry

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIV.

DECEMBER, 1882.

Number 288.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It is usually towards spring that the tenderer trees and shrubs suffer from winter weather. There is yet time to protect them. It is often wind rather than frost which does the injury, or perhaps the sun shining on plants when frozen. Good dry material which keeps back the wind is therefore a better protection than material which holds moisture and breeds mould. The same applies to the protection of small seedlings or herbaceous plants. A mass of manure or wet leaves is a very bad protection.

To have nice trees and shrubs winter pruning is desirable. The practice of shearing a plant, as we often see them sheared, is anything but tasteful. Remember, that as the twig is bent the tree is inclined, and there are much prettier things to incline a tree to than to make a sort of nest which even the proverbial crow would despise. The thinning out of branches and the bending of branches here and there to make them grow as we would like them to, is a great art, and yet a very interesting one in gardening.

Flower beds are often very desirable near where large trees are growing. But the roots of the trees take most of the food. The beds should be dug out about two feet deep every year and

filled in with fresh earth, or the same earth mixed with manure. The object is as much to cut away the roots as anything. The decaying roots in the earth will make some manure.

Lawns under trees suffer in summer. The grass dies from poverty and dryness. A dressing of rich compost at this season will do much to relieve the former trouble.

Since lawn mowers came into general use it is often the practice to let the mowings remain to act, as it is said, as manure. But it is found in practice that this material often kills the finer grasses by its shade, and helps the coarser weeds to grow. It is much better to rake it off after mowing and top dress the lawn with some rich material. It is not necessary that this should be coarse stable manure, making the lawn unsightly all winter. Guano, phosphates, or rich earth that can at once be raked fine, is much better. Avoid bone, cinders, or any gritty matter that will dull the blades of the mowing machine.

Trees love manure as well as grass. Evergreens especially like well-decayed manure. There is a great pleasure in a thrifty tree. It can be placed on the surface beneath the trees.

If possible, without too much cost, vary some of the arrangements of the preceding year. Much of our rural pleasures come from changes

of the seasons, and in gardening the continual growth of trees makes a certain class of changes from year to year. We can help this still more by a little art. It does not, in very many cases, require much time or money so to alter the appearance of a place as to make it bear a very different look to what it did in the past year. A new clump of cheap shrubbery may be planted, or an old one taken away to admit a new view that may have grown up since the original planting. A strip of grass may be laid down on what was once bare gravel. Here a small rockery may be put together; there a nest of roots thrown up, and ferns and trailing plants freely interspersed between them. In this corner you may place a stump, and entice Ivy or some climbing vines to grow over it—a rustic arbor may be formed in some inviting nook, and in another shade-enticing spot a rustic chair or bench be fixed. Even the outlines of the flower-beds may be changed, or of the walks themselves, or even the contour of the surface in some instances, and all, in many cases, at the expense of a very small expenditure of time and money.

COMMUNICATIONS.

VICTORIA REGIA IN THE OPEN AIR.

BY JOHN POLLOCK, FRANKFORD, PHILADELPHIA.

I see by your Editorial Notes that Mr. Sturtevant is regarded as the only one who has flowered the *Victoria regia* in the open air since Caleb Cope did, now over thirty years ago. I grew the *Victoria* for fourteen years when gardener to the late James Dundas, and flowered it in the open fountain in the centre of the garden several years in succession. I had a good-sized plant growing in the *Victoria* house, and about the beginning of June I planted it in the tank in the open air and it flowered about the end of August. I also grew and flowered several varieties; the *Nymphaea* and the *Nelumbium* flowered also. I got the plant down in the Neck, near the old fish house, over twenty-five years ago. I also grew the Madagascar lattice-leaf plant, or, properly speaking, the *Ouvirandra fenestralis*. I suppose it is now out of existence in this neighborhood. But, Mr. Editor, I am satisfied no one can grow the *Victoria* from seed in the open air and flower it in this latitude; for it is a well-known fact to those who have had experience in growing it, that it

requires water at a temperature of 75° to 80° to grow it successfully. Mr. Sturtevant, of course, has not grown it from seed in the open air and flowered it. Mr. George McHattie, when gardener to Mr. Spang, of Pittsburg, grew and flowered it in the open air.

[Even in the South it would be scarcely possible to flower the plant in the open air, unless the plants were brought forward in heat first, as Mr. Pollock suggests. Mr. Cope flowered the real Egyptian lotus, *Nelumbium speciosum*, in the same open-air tank in which the *Victoria* plant was growing, but these also were advanced under glass before being transferred to the open-air basin.

It may be of interest to note that the Philadelphia location for the American lotus, *Nelumbium luteum* referred to by Mr. Pollock has at length been totally destroyed. The one at Moorestown, N. J., we believe still exists.

It would be a matter of interest if Mr. Sturtevant would give an account of his manner of flowering the *Victoria* in warmed water in the open air of New Jersey.—Ed. G. M.]

FRUITING OF THE ARAUCARIA IMBRICATA.

BY D. W. LANGDON, MOBILE, ALA.

I send you by this mail two broken cones of the *Araucaria imbricata* from a tree on our place which is fifteen years old, 20 to 25 feet high, and in its third year of bearing. I can find no seed in the cones and would like to have you "try your luck" in the same direction and report the result.

I know of only one other tree of it in our section—on the premises of Mr. M. Newbrick, of Mobile—and this and mine originated from seed grown at Langdon, both trees being of same age, Mr. Newbrick's tree being perhaps a few feet the taller. Our tree is somewhat misshapen, from the effects of a freeze about seven years ago, when the weight of ice on the foliage broke down the branches on one side; they have never grown out to fill the vacancy. Mr. Newbrick's tree, never having sustained such an injury, is "a thing of beauty."

These two specimens amply testify that it will grow from seed, with proper treatment under favorable circumstances, but we have not been able to procure seed of it. Is there any other way to propagate it? If yes, please let me know the process as much in detail as to stocks, sea-

son of working and other particulars as may be consistent with propriety and your knowledge of facts.

[The cones were immature, not half the size of perfect ones. The seeds are as large as chestnuts and there would be no difficulty in seeing them where they exist. There were probably no male flowers to fertilize them. In forthcoming years you will probably be more successful. In England the tree has been fruiting for several years past, and seedlings are raised from the home grown seeds. In the moist atmosphere of that country evergreens endure a lower temperature without injury than they do in our dry climate, it now being well understood that the death of these trees by frost is rather by the loss of moisture induced by the temperature, than by the degree of temperature itself. The demand for this tree in America is so light that seedsmen do not keep the seed on hand, but some of those who make a specialty of tree seeds procure them when definite orders are given. Native seeds have to be obtained from Chili. *Araucaria excelsa* has been raised by the writer from cuttings, in the same way that evergreen cuttings generally are raised, and probably *A. imbricata* could be raised in the same way. A few could perhaps be raised by grafting on pieces of its own roots. There is nothing under culture that would do for a stock.

Its common name is Chili Pine, and it will be a good thing if the remarks of Mr. Langdon draw enough attention to induce the planting of this remarkably beautiful coniferæ whenever there are not more than five or ten degrees of frost to interfere with it.—Ed. G. M.]

NOTES FROM CALIFORNIA.

BY G. W. H., BELVIDERE, N. J.

I send a few notes of fine specimens I saw at Los Angeles: *Laurustinus*, 5 feet, 7 years old; Camphor tree, 15 feet, 7 years; Monterey cypress, 30 feet high, 15 in. diameter at base, 6 years from seed, one of the finest things I ever saw, so perfectly symmetrical in form; *Araucaria Bidwilli*, 15 feet; *Pritchardia filamentosa*, 3½ feet in diameter, 20 feet high, 10 years old; *Cryptomeria elegans*, very fine; *Grevillea*, 30 feet; *Dracæna terminalis*, 10 feet; Crape myrtle, 10 feet; Pomegranate, 12 feet, height of trunk to lower branches, 4 feet. *Araucaria* a most lovely evergreen; Decodar cedar. *Cryptomeria* is beautiful in winter, becoming every shade of brown.

Hakea australis, brilliant flower like a scarlet tassel. Date palm, 15 feet high. *Myoporum*, 20 feet high, 6 years from seed, magnificent glossy foliage. *Acacia multigona*, 25 feet, lovely; has been covered with flowers. Lemon verbena (*Aloysia citrodora*), 12 feet high. *Erica*, 12 feet, covered with white flowers in winter, a few only in July.

SINGLE DAHLIAS.

BY P.

To many persons unacquainted with the merits of the Single Dahlia it may appear ridiculous to make a retrograde movement in favor of this well known plant.

For years past the ambition of florists has been to make the dahlia as large and double as possible. They have succeeded in obtaining flowers of every shade of color, and of gigantic proportions. To such an extent has this been carried that it has made the dahlia unpopular for many purposes, and fashion has abandoned them for flowers more simple in their construction.

Single dahlias have always been cultivated to a limited extent, but there were few varieties, and these not very brilliant in color, nor free flowering. Now the varieties are endless, producing flowers in great abundance of every shade of black, purple, pink, white, mauve, plum, crimson, scarlet yellow and lavender; while in the "fancy class" you have them striped and splashed in every conceivable manner, and with flowers of great size, perfect in shape, and of great substance.

Single dahlias possess many advantages over the double ones. They are much more suitable for cutting; are light, elegant, brilliant in color, and stand well. They flower earlier, and the blooms are not injured so much by dull, heavy weather as the double. They can be treated as annuals, obviating the necessity of keeping the old roots, from year to year, where no convenience exists for so doing. Single dahlias are more appreciated by the public, and are adapted for a greater number of purposes, consequently are in greater demand than the double varieties. They can be used for bedding purposes, and in this respect will prove invaluable for general decoration, forming luxuriant masses of foliage eighteen to twenty-four inches in height, covered with large brilliant flowers of every shade of color. For beds they should be planted

about four feet apart, and carefully pegged down while young. They are invaluable for cutting in December and January, grown in pots all the summer, and removed inside as soon as frost appears. Last season I saw a house in full bloom in February. White Queen is invaluable for this purpose.

Having briefly given a few ideas of the merits of Single Dahlias, I will proceed to give a list of a few of the most distinct varieties personally selected from the largest collection in England, where the cultivation of this plant has been taken up with much spirit, and where they are grown by thousands.

WHITE.—*Merkie*—A very elegant and useful species, foliage and flowers small, but very abundant; of the purest white, quite distinct in foliage and flower from all the dahlias. *Snowlight*—Greyish white, shading to flesh, fine formed flower. *Vesta*—White, pale primrose centre, very effective. *White Pet*—Small neat flower, great substance, pure white, fine for cutting. *White Star*—Quite distinct from above, medium sized flower, pure white. *White Queen*—The finest of all the whites, blossoms of great size, perfectly symmetrical, exceedingly free flowering.

ROSE AND PINK.—*Christine*—Bright pink, fine well-formed flower. This is one of the most telling I have seen; it has received several "First-class certificates" this season. *Fanny Walter*—Bright rose tinged with pink, fine flower. *Francis Fell*—Bright fiery purple, with rosy tinge, good form, exceedingly free flowering, and a great favorite. *Nora*—Delicate pale pink, very dwarf habit, exceedingly free flowering. *Petronel*—Delicate pale pink, fine well-formed flower. *William Gordon*—Mauve and pink blended, beautiful soft rich shade, extra fine shaped flower.

PURPLE AND MAUVE.—*Ascalon*—Bright rosy purple, and exceedingly large well-formed flower, fine for cutting. *Duck of Teck*—Rich mauve, florets perfectly flat, an exceedingly well-formed flower. *Kisber*—Rich mulberry, very effective, and telling shade. *Mauve Queen*—Fac simile of White Queen in form, but a rich silky mauve color, the best of this shade. *Purple King*—Rich violet purple, small well-formed flower, fine for cutting. *Purple Paragon*—Deep rich purple, beautifully shaded, same size flower as Paragon.

YELLOW.—*Canary*—Rich canary yellow, medium sized flower, very good. *Lutea grandiflora*—Rich yellow, an immense flower, and perfect in shape, a grand decorative variety. *Solfaterre*—Pale primrose, large well-formed flower, exceedingly free flowering. *William Cuttingford*—Rich pale yellow, fine, well-formed flower. *Yellow Queen*—Fine bold well-formed flower, of great substance, flowers erect, rich sulphur yellow, fine companion to White and Mauve Queen.

RED AND SCARLET.—*Criterion*—Light red, shaded with orange, good shape. *Gracilis Elegans*—Clear bright scarlet, fine shaped flower, neat erect habit, very free bloomer. *Ruby*—Rich ruby red, flushed with crimson, very novel. *Rob Roy*—Intense scarlet, extra large flower. *Scarlet Gem*—Scarlet shading to orange, medium sized flowers, fine for bouquets. *Thomas Wheeler*—Pretty bright brick red, fine formed flowers and very free.

CRIMSON AND MAROON.—*Darkness*—Intense rich mulberry, shaded black, medium size, and of good substance, the darkest yet raised. *Le Baron*—Rich mulberry, shaded

with crimson, with a dark ring round the disc. *Thalia*—Rich amaranth, medium sized flowers of great substance, and exceedingly free flowering, one of the most effective. *Beauty of Cambridge*—Bright fiery crimson, large flat solid flower, universally acknowledged as one of the finest of the Single Dahlias. *Ceres*—Large deep crimson. *Gracilis perfecta*—Rich velvety crimson, fine formed flower, very free bloomer.

ORANGE.—*Albion*—Orange-shaded rose, large bold flower. *Aurantiaca superba*—Flowers of medium size, bright orange. *Cuprea*—Orange shaded with copper, very free blooming. *Orangeman*—Rich orange, tinged with red, very effective.

FANCY.—*Marmion*—Large rich velvety flowers, striped with chestnut red. *Pantaloon*—Small flower, but very effective and abundant, rich mulberry edged with white, very pleasing. *Paragon*—Rich velvety maroon, each petal edged with a distinct rosy purple band, medium sized flower, perfection in shape, a first-class variety for cutting. *Stars and Stripes*—Large well-formed flower, of bright rose color, heavily striped and spotted with purplish crimson, a very conspicuous and showy variety. *Union Jack*—Fine bright scarlet edged with white, small flower, but very free blooming, extra fine for cutting. *Utility*—Medium Flowers, white striped with lilac, quite a novelty in this class.

As decorative plants Single Dahlias will become very popular; they are easily grown, produce an abundance of bloom, and are not at all fastidious as to soil and position. They can be treated as annuals, and, provided a good strain of seed is obtained, the amateur may depend upon getting a great variety of color. The seed should be sown early in January, and grown on until May. By that time they will be strong plants; a few might be grown in pots for winter decoration, while those intended for summer display should be planted out. Where possible to obtain good named sorts, I would recommend every one to obtain them in preference to seed.

I have made a selection (marked *) of eighteen of the most distinct, embracing every shade of color, which I am sure will please the most fastidious.

[Usually we should hardly feel warranted in taking up so much space with descriptions of florists' flowers, readily obtainable from ordinary catalogues, but in this instance we are anxious to show the reader how very great is the variety which is being added to our gardens by the improvement of the Single Dahlia.—Ed. G. M.]

THE DOUBLE CAROLINA JASMINE.

BY D. W. LANGDON, MOBILE, ALA.

I wish to call attention to the free blooming qualities of the Double Carolina Jasmine (*Gelsemium nitidum flora pleno*) which was partially described in the GARDENER'S MONTHLY of June, 1881. My old plant—which is now some ten or twelve years old and completely covers

one end and a half of the top of a frame twelve feet by sixty, and seven feet high, erected as a half shade for such plants as in our climate require to be protected from our scorching summer suns—has been blooming at intervals pretty nearly all summer, and now, while still presenting a few open flowers, is literally filled with young flower buds in all stages of growth. I send you a sprig of the vine that you may see for yourself. I am satisfied in my own mind, from present indications, that it will continue to bloom until checked by a freeze, and that under protection would continue still to bloom during the whole winter. This will greatly increase its value to florists and others who need flowers of its color (a beautiful canary) for their winter work. I am sorry that I did not know this earlier that I might by this time have had a strong plant of it under glass.

EDITORIAL NOTES.

THE GOVERNMENT GROUNDS IN OTTAWA.—When in Montreal the editor found it impossible to go with the party who were invited by the Dominion Government to visit Ottawa; but some friends of his, who went on the trip, reported that among the many interesting things which they saw there, the beautiful government gardens were by no means the least. Mr. Robertson, the superintendent of these grounds, received much praise for his good work.

We have on hand a very interesting sketch of these pretty grounds, which we hope to give in an early number.

ROSE GIGANTESQUE.—This is regarded in England as one of the best of the Tea Roses for winter flowering. It is rose-pink in color.

CEDAR OF LEBANON IN NEW ENGLAND.—Colonel M. P. Wilder has a Cedar of Lebanon on his grounds at Dorchester, near Boston, which is probably the only living specimen in New England.

DWARF TUBEROSE DIAMOND.—M. Jean Sisley says in the *Revue Horticole*, that this variety, which was withdrawn from the trade last year, as our readers will remember, in order to test its reported relationship with Pearl, is to be brought out in France the approaching season.

DOUBLE DWARF GERMAN SCABIOUS.—Only a Scabious!—a common flower that at one time,

not far distant, was scarcely tolerated in gardens, and which is now welcomed as beautiful and useful alike. Thanks to the German florists, they have not only given us a dwarf, but a very double, handsome and varied race of dwarf Scabious. Before us, as we write, lies a group of flowers picked from a collection of dwarf Scabious grown by Mr. J. Roberts, of Gunnersbury Park. We make out nine distinct varieties, viz., dark maroon, crimson, rose, purple-rose, mauve, lilac-pink, salmon, blush and white. It would not be difficult to name others, but these are all as distinct as they are large and full in the flowers. If any one will look at a well-developed bloom they will perceive there is an exterior circle of large four-petalled flowers, and within this a dense mass of much smaller flowers of the same shape, quite filling up the surface. They remind one of double Pyrethrums, but are not so large or high centred; they are wonderfully free of bloom, and those who grow them find them extremely useful for cutting purposes. It is the custom of the German seed growers to make up collections of these dwarf Scabious in six or nine colors, and on the whole they come pretty true from seed; but the tendency to sport, which is characteristic of so many flowers, is certain to display itself in the case of the Scabious, and does so, but not to a great extent.—*Gardener's Chronicle*.

CALLICARPA PURPUREA.—Again we may call our readers' attention to this dwarf shrub—quite unique in the autumn by its numerous violet berries. Besides, it is a pretty bush and the July flowers, though small, are attractive.

CULTIVATING DAFFODILS IN CHINA.—Mr. Maries says in the *Garden*: "Narcissi are slit down the sides in three or four places, are grown in saucers of gravel and water, and I have never seen finer flowers. The Chinaman calls it the 'New Year Flower;' the more spikes on a single bulb the better his chance of success during the year, or, as he says, 'plenty flower, plenty pigen.'"

AMERICAN BANNER ROSE.—This is a striped rose, raised as a sport from another, and like all sports of this character is liable to become self-colored at times. This tendency to reversion is an objection; but where it continues to maintain its character it is much prized. When in the bud it is very beautiful.

IMPROVED FOX GLOVES are among the latest of European floral popularities.

SCRAPS AND QUERIES.

DARK-LEAVED MOUNTAIN ASH.—Mr. Charles Freund says: "The oak-leaved Mountain Ash, which your correspondent, Mr. Robert Douglas, speaks of, is a seedling and originated with a then well-known nurseryman, Mr. P. H. Gumpfer, of Stuttgart, Germany. It flowered first about 1854. Mr. Gumpfer had it lithographed, flower and leaf, and published in several of the leading horticultural journals. About that time Mr. G. sent a number of young trees to the Messrs. Ellwanger & Barry, of Rochester, N. Y."

CLERODENDRON BUNGEI.—"R. D. G.," Reading, Pa., writes: "Please tell the name, in the GARDENER'S MONTHLY, of this plant which comes up in a neighbor's garden profusely, and the seed of which, she thinks, a bird must have dropped."

[*Clerodendron Bungei*, a native of the North

of China, and introduced into American gardens, in 1857, from Belgium by the writer of this. The stems are destroyed by frost in this part of the United States, but the creeping roots survive, except in very severe winters, and the young shoots usually terminate by a large head of rosy purple flowers, which is very showy. It makes an admirable tub plant, as, when protected from frost, the plant in a few years makes a bush several feet high, and bears innumerable heads of flowers. It is remarkable that while the flowers are delightfully sweet-scented, the leaves, when rubbed, are malodorous; and this suggested to Bunge the name of *C. fœtidus*, which, however, had been appropriated already by another rank-smelling species.

Your friend's plant was probably introduced by a piece of root brought, with some other plant in the past, from some other garden.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Most coal contains sulphur, and when burning the sulphurous flames injure plants. In like manner there is some sulphur in illuminating gas, and it is given off during burning. Much of what is supposed to be the injury from dry air in rooms and greenhouses comes from sulphurous fumes. We have only to note how plants grow in the dry summer air when they get food and moisture enough at the roots, to understand that a dry atmosphere is not unfavorable to good plant growth. Many persons are disgusted with plant growing from a prevalent belief that the atmosphere has to be as damp as a Brazilian swamp. In dry air, however, red spider, the most destructive of plant enemies, is apt to flourish. It is so small that one is not apt to see it until great damage is done. They are no larger than needle points, and are generally found on the under surface of the leaf. They are called "spiders" because they make webs like a true "arachnoid," as the learned call those insects which belong to the spider tribe. If one has but a few plants this troublesome insect may be easily kept down by continual examination, and crushing with finger

and thumb. There are, however, some plants which have leaves that will not admit of this sort of handling. It is, therefore, a good plan to place the plants on their sides occasionally and syringe them with water warmed to about 130°. Soapy and other washes often recommended are also great aids in this washing process.

In watering plants much judgment is required, as plants suffer much more from over-watering than from any other cause. No one can teach exactly how to water plants. The knowledge must come from experience. The practiced eye detects by the color of the earth whether it needs water or not. Whatever may be the color of the earth employed in potting plants it is always paler when dry than when wet. Again, the practiced plant-grower learns to tell by the weight alone. By lifting the pot the weight tells if too dry. If too wet it will be much heavier than it ought to be.

Basket plants often suffer from too much or too little water. If from too little, the leaves curl or fall, and the plants have a dried-up appearance. If too much, they get yellow and drop off. As a rule, a basket in a warm room, should be taken down once a week, and soaked in a bucket of water, then drained and hung up

again. Every day during the rest of the week a little water may be given the plants, and something put under to catch the drip. Some baskets have no provision for the escape of moisture. These are dangerous. Still some people manage to watch closely, and do well with them. Fern cases do best when given a little sun; for, though ferns are supposed to grow naturally in shady spots, it is because there is generally a more humid atmosphere there. If they can get this moisture, they rather like light.

COMMUNICATIONS.

THE SCIENCE OF ARRANGING CUT FLOWERS.

BY MR. CHAS. H. MILLER, LANDSCAPE GARDENER OF FAIRMOUNT PARK, PHILADELPHIA.

The subject of cut flowers concerns us all, and a few hints as to the arrangement of them may not be out of place. Much of the beauty of these lovely gems is often lost through a want of taste in this respect, as for instance when stiffly arranged in a bouquet, ring after ring with little intervening foliage, and no graceful form of tendril, leaf or bud allowed to break the monotonous circle. It is not by size, but by expression of color and shade that we have to measure, and thus the effect of a group of flowers prettily and harmoniously arranged may be completely spoiled by being multiplied in number or increased in size; that is, by repeating the same flower or adding to the same group.

A safe general rule for guidance in the arrangement of flowers is, if there are many flowers use delicate shades; but if the flowers are few and the foliage among which they are laid is dark, use shades of much deeper tones. In the arrangement of cut flowers for the parlor, side-board, or dining table, much depends on the shape and color of the vessel in which they are placed. The white of glass or of Dresden china vases is so intense when placed in artificial light that the pure white flowers would scarcely look their whitest in them. Very light flowers are also likely to look darker by the striking contrast. A quantity of green is therefore the best fringe for such dishes, and ferns and smilax are the most suitable. In all floral arrangements, whether for vases, bouquets or designs, it is better to put in the green first and gradually working them up to the required brightness, always remembering that the collection had bet-

ter lack a flower than have one too many, the object being to form a graceful, refreshing and suggestive picture.

The art of constructing bouquets, and the classification and arrangement of flowers for the table, cannot be communicated in writing. It requires as much taste, skill and practice to become a good artist in the making-up of flowers as it does experience to become a good gardener.

But to proceed with the subject of the arrangement of flowers in general, the main feature being to show each flower separately and not a quantity crowded together, forming a mass of petals, but that each flower may be seen reposing quietly among the green, giving to each bloom an individual character. A few colors in a bouquet have a much prettier effect than a mixture of many colors. Red, white and buff go well together with green between. A few rosebuds with their own leaves, and a little green smilax, make a bouquet much more handsome than one composed of many kinds of inferior flowers. These remarks hold good in the arrangement of designs for the table.

One of the most beautiful table designs I ever saw was a large open dish of *Lycopodium*, a few white and pink rosebuds, with a handsome *dracæna* in the centre. The effect produced by the fresh green moss with the gay leaves of the *dracæna* was simply beautiful.

It is to be hoped that a better taste will soon supersede the enormities in so-called floral designs. The monstrosities often seen at our horticultural exhibitions are something to be avoided. They are unpleasant to look at and cannot be appreciated by persons of good taste. I have very little sympathy for the fashion which arranges flowers in the forms of broken wheels, vacant chairs and the like. At one of the horticultural exhibitions held recently in New York there were liberal and extra premiums offered for works of this kind, which brought forth some very beautiful designs, but the majority of them were ugly in the extreme. There were clocks and mantelpieces—at least so said the cards attached. There was a camp-fire with a tripod, the fire being represented by red flowers. There was a pair of shoes on a cushion; the shoes were made of white flowers outside, with scarlet flowers for lining.

At the floral exhibition of the Pennsylvania State Fair, held at the Centennial Building in September, 1881, there were also many absurd designs. Among the most noticeable there was

a coffin, which, as a work of mechanical art, was perhaps to be admired. But why degrade these beautiful creations by working them into such shapes so distressingly suggestive? Another example of bad taste in the selection of the subject and in the arrangement of colors, was a huge oval frame of walnut, with dark and yellow-colored dahlias arranged in rings around the edge, and a butterfly—or what was meant to represent that gay insect—in the middle. And, strange to say, this piece obtained the first premium. Of course these designs attracted the attention of the people, and were admired by certain ones whose taste leads them to admire a huge pyramidal bouquet with a calla lily in the centre.

But the people who are pleased with this style of floral work are not those who exhibit the best taste. It becomes a question whether a horticultural society is properly educating the public by offering premiums and thus encouraging a false taste for flowers. It was a relief to turn from such horticultural absurdities to a simple bouquet of roses and smilax, and to the most appropriate of all funeral designs—a plain heavy wreath and cross of white flowers fringed with green.

THE MARECHAL NIEL ROSE.

BY WM. CAPSTICK, BAY VIEW, MASS.

I wish to say a few words on the cultivation of the Marechal Niel Rose "under glass," and thinking that to enter into all the minute details would take up too much space in your valuable paper, I will confine myself to a few of the most important parts.

To succeed with the Marechal Niel I prefer plants budded on the Banksia or Solfatarre, as they tend to check too rampant growth for the first two or three years, and induce more freedom to bloom by producing wood that ripens well. Also, the budded plant will grow and bloom for years, where, on the other hand, plants on their own roots make a strong watery growth, which it is almost impossible to ripen, (unless the wood of the Niel is thoroughly ripe we get but few flowers), and after a few years the plant begins to decay, and is gone before we have had a full crop of bloom from it. We must always bear in mind that the Niel wants age before it will flower freely.

Another thing we must consider—the Niel must either be grown in a house devoted to its requirements, or in pots or tubs.

I prefer the latter mode. Take good thrifty plants about March 1st. Pot them into six inch pots, give moderate heat and moisture, say 55° by night, 70° by day, shift into larger pots as they require it; in this way keep them growing until the first or middle of September. Then place outside, first plunging the pots into the ground up to the rim; tie the top up to a trellis or let it rest on some old brushwood, or some kind of support, so that the air will have a free circulation all around the shoots. Never allow the plants to get dry so as to wilt. But be careful not to water so as to induce growth.

The plants may remain in this position until after the first sharp frost, or until about the 20th or last of October. Then take up the plants, loosen the soil on the top of the pots with a hand fork or pointed stick, to the depth of two or three inches, remove the soil and replace with a top dressing, one half loam and one-half rotten manure. Prune away all useless wood, place in a greenhouse, which keep at a temperature of 45° to 50° by night, 65° to 70° by day, for about a fortnight, then gradually raise the temperature to 55° by night, 75° to 85° by day, the latter temperature with bright sun. I do not like a night temperature of more than 55°, as I find it spoils the color and size of the buds.

EXPERIMENTS WITH CALADIUMS.

BY MR. CHARLES CRUCKNELL, ST. LOUIS, MO.

The following detailed experiment is one of a series in which I have been for some time past engaged, and as the sequel will show has resulted in some remarkable and wholly unlooked-for developments.

Early in the month of March, 1881, I selected eight varieties (or species) of Caladiums, intending to give them special treatment and prepare them for the experiment in view, namely, hybridizing. The bulbs were no larger than medium-sized onion sets. In the following December, after they had been at rest ten weeks, the bulbs were examined. The largest bulb, *C. Houlettii*, measured six inches in its widest diameter. The next largest, *C. Wightii*, five inches.

In February, 1882, they commenced growing and were moved at once into the stove house where, finally, seed from six crosses matured. The experiment ended here with five of these, but from the sixth (a cross between the two named above), two hundred and four seedlings were raised. I had, previous to sowing, counted

the seed and made the number two hundred. The seed was sown on May 11th, commenced germinating four weeks after, and continued doing so until August 20th.

The seedlings I have arranged in nine groups, placing in the first group all those having two or more kinds of colored spots on a green ground, and whose general appearance indicates close relationship to the female parent, *Caladium Wightii*. But the disturbing influence of the male parent, *Caladium Houletii*, has been so prepotent that I question whether a single plant of the progeny will prove to be exactly identical with the female parent. On the other hand, the ninth group, which contains nine seedlings and which are all alike, are exact duplicates of the male parent.

The seedlings of each group differ, not only from each parent (exception named above), but from each other; sometimes to an almost incredible degree. Moreover, the groups are well defined and do not graduate into each other, but are perfectly distinct. Nevertheless there is one character which is common to all the seedlings, and in the language of Darwin, betrays the hidden bond of community of descent; it is the peculiar form of the spots, and their manner of distribution.

A complete disturbance of colors has resulted from this union. The red and white spots of the parents are supplemented with crimson, carmine, brown, terra cotta, yellow, rose, pink, flesh and parti-colored spots. A dark central spot, not in either parent, is seen in a majority of the plants classed in the first three groups. The next four groups have high colored veins, and these again are shaded on each side with various bright shades of color, which do not appear in the parents. Groups eight and nine have white veins and centre, resembling the male parent in this respect. Every shade of green, I think, is seen in the leaves, from a pale yellowish green, down to what is known as myrtle green. The stems also present a great diversity of color.

Six of the seedlings are glazed, and this glazing appears on the under side of the leaves in blotches, much as though oil had been spread over the surface and had soaked through. A gentleman connected with an English firm, who visited our place recently, and who is familiar with the latest improvements in this class of plants, declared he had never seen anything like this before. The metallic lustre which adorns a

majority of the seedlings is an entirely different character.

Group No. 1 contains fifty seedlings. The greater number of these have red (various shades) and pure white spots; a few have red, white and parti-colored flesh and white spots. One seedling has red, pink, flesh and pure white spots, the dark central spots, dark spotted stems and a brilliant lustre. In another the red and white spots are so deeply oscillated that the leaf has the appearance of parti-colored lace work; among the last to germinate were eight seedlings of this group, with yellow (clay) and white spots. There are also six or seven with terra cotta and white spots. Leaves green.

Group No. 2 contains fifty seedlings with either white or flesh-colored spots. Leaves green. In these two groups the spots are more numerous than in either parent, in many instances covering the entire leaf surface.

Group No. 3 has a solitary specimen with long sagittate, olive green leaves, red spots, the dark central spot, a brilliant lustre and dark stems.

Group No. 4 contains one plant. The principal veins are bright crimson, centre of leaf clouded crimson, self-colored rose spots, red stem, and highly glazed.

In group No. 5 I have placed five plants with yellow foliage, scarlet spots, the centre and veins—in some pearly gray, in others brilliant crimson.

Group No. 6 contains thirty-seven seedlings. The veins and centre of leaves brilliantly colored and extending over a large surface, the edges of the leaves green; the spots are either red, bright pink, cinnamon brown, or terra cotta.

Group No. 7 contains forty two seedlings. The veins are various shades of red; in one instance they are violet, very little if any centre shading, excepting two or three seedlings, the spots either white or flesh color.

Group No. 8 contains nine seedlings. The veins silvery white, with a faint purple pencil mark in the centre of each, pearly gray centre and red spots.

Group No. 9 contains nine seedlings, all alike, and, as stated above, are simply duplicates of the male parent.

EDITORIAL NOTES.

LARGE COCKSCOMBS.—It is common in England for lovers of plant culture to try their skill in plant growing on the common cockscomb. At

exhibitions there are often large numbers for competition, and much more interest is shown in learning who has the largest cockscombs, than we show in discovering who has the largest pumpkin. The past season Messrs. Veitch, the nurserymen of Chelsea, are credited with the largest grown in England. It was 2 feet 9 inches from tip to tip, and 18½ inches in its greatest breadth.



CELOSIA "PRESIDENT THIERS."

Usually the flowers of the cockscomb are of a crimson, velvety color, but of late years some have been introduced of a yellow and orange, mottled with the purple.

Annexed is a cut of a new one introduced by the celebrated seed firm of Haage & Schmidt, of Erfurt, and which may, no doubt, be had of any of our leading seedsmen the coming spring. It is known in the lists as "Celosia President Thiers."

ARRANGING CUT FLOWERS.—Tasteful combinations of flowers and foliage that harmonize not only in color, but in form, are our chief aim in this work. Avoid mixtures of gaudy colors: if scarlet is the chief color, use no yellow shades, but rather choose white for contrast. For example, just now the bold scarlet flowers of *Valloia* are plentiful, so also are the lovely white flowers of *Anemone Honorine Jobert*; try them together, using the *Vallota* blooms singly for a groundwork, out of which springs the white *Anemone*, also single, yet with the flowers gracefully clustering. This is a charming mixture for a dinner-table, and serves to illustrate my meaning both in its application to form and color. In so treating a *Marsh* stand lately the *Vallota* flowers in the bottom saucer had a bold fringe of Fern fronds, a few small sprays of Maiden-hair Fern rose among the mingled white and scarlet flowers, and around the glass stem was

twined a spray of *Selaginella cæsia* with the lovely bluish metallic hue, well developed, partly hidden by tufts of half-opened *Anemones*, dried Quaking Grass, and a couple of leaves of *Geranium pratense* which clustered around the base. The same flowers were repeated in the tops with the addition of hold clusters of scarlet-flowered *Begonia fuchsoides*. Had this stand been for a daylight decoration some spikes of single blue branching Larkspur might have been used with excellent effect. But blue never answers for lamp light, and is never used because it looks black, just as yellow becomes an unsightly shade of white under artificial light, and is, therefore, always avoided for dinner-table work.—*Journal of Horticulture*.

DESTROYING INSECTS UNDER GLASS.—The following method, says the *Revue Horticole*, has given most satisfactory results, and the inventor, M. Boizard, gardener to Baron Rothschild at Paris, assures us that success is infallible—at least for three years, during which he has been experimenting with it it has been so with him. He says, "Having procured 2 quarts of tobacco juice, I boil it over a slow fire on a furnace in the house. An hour and a half or two hours afterwards, the liquid being reduced to about one-third its bulk, becomes viscid and almost solid, when, after having diluted it into 1 quart or 1½ quarts of water, I boil it more quickly until all get converted into vapor and fixed in the form of dew on every portion of the plants. I remarked no damage done, not even amongst the most tender plants, such as *Adiantums*, young plants of *Blechnum Braziliense*, *Coleus*, &c. Some young fronds of *Adiantum* alone suffered, but it should be added that they were on the stages." If danger were apprehended in the case of certain plants, they might be taken out, or their safety assured by means of paper caps; and if it was a question of flowers or fruits, similar precautions might be taken to preserve them. M. Boizard assures us that no insects can resist this treatment and that the greater portion of them do not appear again for six months. In the case of such as reappear quickly, it is easy to renew the operation, but then 1 quart of tobacco juice and 1 quart water will suffice. This method is as economical as any other, and M. Boizard says that it is possible to remain in the house during the operation without being inconvenienced thereby.—*J. Cornhill in Garden*.

FUMIGATING GREENHOUSES.—The duty of fumigating greenhouses is such an unpleasant one that it is often neglected to the injury of the plants. A French horticulturist has made a discovery which will render it unnecessary to use smoke for the purpose. He finds that the vapor from boiling tobacco juice is as efficacious as are the fumes from the burning weed. The method adopted is simply to mix a small quantity of juice in the water and evaporate the whole. The vapor, it is said, kills all the insects in the house. Could not the same plan be adopted against house-flies and mosquitoes? Its recommendation would be its cheapness. For the juice could be expressed from the refuse tobacco which is now thrown away at the factories.

ARRANGING FLOWERS FOR A DINNER-TABLE.—A correspondent of the *Journal of Horticulture*, describing two very successful occasions, says:

"In the centre a good specimen in a five inch pot of the beautifully drooping golden *Croton angustifolius*, the pot mossed over, and at the base were disposed large fronds of Maidenhair Fern, next a ring of white *Chrysanthemums*, and above this large trusses of a beautiful pale rose *Rhododendron*, obtained by forcing. With these between the candlesticks we employed between the dishes of dessert small plants of narrow-leaved *Dracenas ferrea* and *nigra-rubro* and flowering *Pelargoniums* in three-inch pots. The pots were stood on Maidenhair Fern and covered with moss, in which were disposed a few yellow *Chrysanthemum* blooms, which by candlelight really appeared to be white. On another occasion different plants were employed, and sprays of *Jasminum nudiflorum* were advantageously substituted for the *Chrysanthemums*, and richly colored leaves of *Mahonia Aquifolium* for the Fern fronds. Red *Primulas* would have been employed failing the more beautiful *Rhododendron*."

SCRAPS AND QUERIES.

DUMESNIL FERTILIZING MOSS.—Mr. E. A. Caswell writes: "A recent number of the *GARDENER'S MONTHLY* presented an indictment against the Dumesnil fertilizing moss, made by one high in authority, and we beg to offer a few facts in our defence. To state that because early in the century—about the era of stage coaches and tallow dips,—some gentlemen failed to make a moss which would successfully nourish, etc., plants, without earth, that therefore M. Dumesnil cannot do so in 1882, is certainly not a strong argument at a period when the discovery of hitherto unknown scientific principles and new

applications of well known ones occur almost monthly to revolutionize some branch of human industry. And to affirm that probably no fertilizing material, not already known to horticulture, can be used with moss to feed plants, is rather a negation of progress. The fact is, that the Dumesnil moss contains several ingredients that have never been thus used before, and it is a different article from all similar substances hitherto offered. It costs between eighteen and twenty cents to make it, and its materials are too many and too expensive to pretend to compete with simple bone dust and moss. Mr. Henderson admits the excellent growth of plants in Dumesnil moss during a trial of only one month. Let him wait four and then report—others bring proof of better results. Mr. N. H. Schmidt, of New York and Astoria, ex-superintendent of the Munich and Berlin Royal Botanical Gardens, etc., has obtained wonderful results with Dumesnil moss in the growth of 'orchids' from Brazil, and 'palms' (*Cocos Wedellianum*, *Geonoma gracilis* and others), which, with moss added to the earth, have reached in two months the point that those planted in earth alone reached in four. Mr. C. J. Power, of South Farmingham, Mass., among many other plants exhibited a '*Hybiscus Cooperii*' in Boston that was confessedly one of the finest specimens ever seen in the city, and he has recently had brilliant results with 'trailing arbutus,' grown in the Dumesnil moss. The Massachusetts Horticultural Society has awarded to the moss a medal, and has thus seen fit cordially to endorse it. When our facilities are perfected we shall offer Mr. Henderson an opportunity of testing, under impartial conditions, any moss or earth he may bring in competition with Dumesnil moss, and an opportunity also for some one to give a hundred dollars to the poor in case of failure.

"That Mr. Henderson should deem our moss worthy of attack, is a cause of deep satisfaction.

"And the stern joy which warriors feel
In foemen worthy of their steel."

[It may be remarked that Mr. Henderson made no "attack" on this moss. Notwithstanding the sneer in the last paragraph at Mr. Henderson's judgment, it will be remembered that Mr. H. was "invited" to test it, and that a package of the moss was sent to him for the express purpose. He simply recorded the judgment he was invited to give. The invitation to him to make another test is very funny in view of the last paragraph. Mr. Caswell's letter does not

seem to convey much more information to the reader than he is already possessed of. Personal challenges seem more in place in the advertising columns; but we pass the letter for publication here on an appeal for "justice," though we really think it is not called for by anything Mr. Henderson said.—Ed. G. M.]

A NEW DECORATIVE PLANT.—A Philadelphia correspondent says: "Do you know of *Asperula odorata* (Mijisike, fifth order or class)? As a running vine, growing fifteen to twenty feet high, similar to smilax, having a rough stem edged four or six square, narrow green cut foliage, of a glossy appearance. When cut, and it begins to wilt, it emits a delightful fragrance, sweeter than new mown hay, which remains fragrant all winter. A friend says it is bound to supersede smilax; it grows wild in the forests of Sweden. If you can give us any information in regard to it, you will oblige."

[*Asperula odorata* is the sweet-scented wood-ruffle of the florists. It is a low herbaceous plant, seldom getting more than six inches high. It belongs to the natural order Rubiaceæ, and is very near to *Galium*.

A sample of the precious seeds was placed before the editor, and was examined by him with a lens, and he has no hesitation in saying they

belonged to some Caryophyllaceous plants—the order to which pinks and catch-flies belong to, and which, so far as he remembers, contains no climbing plants.—Ed. G. M.]

NEW OR RARE PLANTS.

A NEW FERN—*ADIANTUM ANEITENSE* (see illustration).—This is the season when fern culture has peculiar charms, and our readers will thank us for introducing them to a pretty novelty recently brought to notice in England. It is a very elegant free-growing species of Maidenhair Fern, introduced from the Island of Aneiteum. It has a creeping rhizome, clothed with dark-colored scales, and three or four times divided deltoid fronds. The numerous segments of which the fronds are made up are rhomboidal, nearly sessile, firm in texture, with a glabrous surface, subglaucous beneath, and shallowly lobed along the upper and outer edges, where the roundish-reniform sort are borne in the centre of the lobes. It is a distinct and ornamental evergreen stove fern, and was one of the twelve new plants with which Mr. W. Bull gained the first prize at the great show of the Royal Horticultural Society, held at Kensington in 1880.

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

SEEDLING PEAR.

BY A. A. BENSEL, NEWBURG, N. Y.

It would seem, from the great number of apples and pears in cultivation and named in the catalogues, that additions to the list were entirely useless, and yet, occasionally, a variety appears to command attention. A seedling pear tree in the nursery row on the grounds of Dr. Wm. A. M. Culbert, Newburg, N. Y., produced fruit this year which is very desirable in its variation from the old Seckel. It is in perfection the last week of October, after the Seckel has disappeared in the market; this young tree has

fruit the size of Seckel; will probably average larger when the tree attains age; skin smooth and light russet, with bright red or crimson cheek; stem medium, calyx open in a slight basin; flesh fine, buttery, yellowish white, sweet, with abundance of sprightly, rich, refreshing juice—not the honey sweet of the Seckel, from the seed of which it was grown. I think that another year will develop many good qualities in this variety.

FRUIT CROPS IN WESTERN PENN'A.

BY A. HUIDEKOPER, MEADVILLE, PA.

Owing to several severe frosts in the spring, after vegetation had got well under way, the

orchards in North-western Pennsylvania show very little fruit. Some young orchard, favorably situated, presents an occasional exception; and

I have not eaten any fruit of the Le Conte pear, but I may bear witness to its rapid growth. I had given to me some grafts of it,

ADIANTUM ANETENSE. (See opposite page.)



the Northern Spy apple, producing a moderate crop among trees that this year have yielded nothing, shows the benefit of its late period of blossoming.

sent from Georgia, towards the close of winter. They were buried in my grapery for over two months, and were somewhat shrivelled by keeping. I cut off a small Seckel pear, and put two

grafts in stub about the last of April. And now, September 29th, the longest shoots are respectively 66, 58 and 57 inches long, and the whole shoots and side branches show a growth of 49 feet of wood, which is doing well for a late season.

HOW I RAISE EARLY CELERY AND KEEP IT TILL SPRING.

BY AUG. D. MYLIUS, GARDENER, DETROIT, MICH.

I sow my seed in a hot-bed on the 1st of March. The bed must be in good condition, that the seed may germinate quickly; for celery seed takes thirty days, generally, in open ground, to germinate. Seed must not be sown too thickly, as the plants should be stocky. I have tried to germinate the seeds by keeping them moist and warm before 1st of March, but I found the above date safest, for if sown earlier, there is danger of the celery running to seed. About the 15th to 20th of May, if the ground is in order, and weather suits, plant out in ditches six inches deep, on the richest spot you have. The only things wanted to grow celery successfully are plenty of cow or hog manure, and moist land. The soil must be good down to at least twelve inches. About the 1st of July we commence to bank up, slowly if dry; if moist, draw up as high as you can; if really dry weather, so that the soil is too dry to stick if drawn up to the plants, I use foot boards sixteen feet long, pressed on each side against the celery, and sticks drove in to keep in place. This mode bleaches the celery best, but if soil be used the stocks or heads are a great deal heavier. I have tried to keep celery in the following way, and kept it till spring. Pitted in hot-beds the same as if pitted in the old fashion. After bed is filled, the sash are put on; give air once or twice a week; if so cold that boards are not sufficient, straw or mats can be put on. Looked after in this way, it can be kept till spring.

THE GROS COLMAN GRAPE.

BY JAMES H. BULL, WEST CHESTER, PA.

In the January number of the GARDENER'S MONTHLY appears an article by the editor in answer to queries about this grape for culture in a cold graperly. In the April number A Sigler, of Adrian, Michigan, condemns it as a slow grower and shy bearer, and not of first quality. He calls it "Gros Colmar." If he grew the Gros Colman in an old graperly, where the bor-

der was clogged with roots, the wonder with me is, that it ever grew or bore half a crop.

I obtained cuttings from Dr. Charles Huston, of Coatesville, in January, 1878. The eyes were set in February of that year. They were planted in a new lean-to house, about June 1st, in a rich, outside border manured with bone and well-rotted stable manure. I sold the grapes in November, last year, to fruit dealers in Philadelphia, at \$1.00, when B. Hamburgs, Bowwoods and Muscat Hamburgs only brought 60c. a pound in October. The grape in quality is little behind the Black Hamburg; is a better bearer; clusters as large and berries from one-half inch to one and one-fourth inches in diameter. Its flavor is slightly that of a fine cherry.

EDITORIAL NOTES.

HOT-HOUSE GRAPES.—Graperies are becoming more common in the West than they were, notwithstanding the old-time fear that the improvement in the native grape would in time render the culture of the foreign under glass superfluous. At Adrian, Michigan, Mr. Sigler grows them very successfully; white Hamburg and Tokay doing very well with him.

GROS COLMAN GRAPE.—Some doubt has been expressed as to this variety being a good one for a cold vinery. In a city store, recently, we saw some from the graperly of Mr. J. H. Bull, of West Chester, which were perfect in size and color. One bunch had been cut which weighed one pound ten ounces. Certainly no one could desire better success than this in a cold graperly.

THE BEST BLACK GRAPE.—Suitable alike for the amateur, the market grower, or the gentleman's gardener, for early forcing or for mid-season consumption is the Black Hamburg, and the best variety of this Hamburg is that known as the Frankenthal. The true Frankenthal variety may be easily detected by the hammered appearance of the berries when they are ripe. This variety also produces longer tapering bunches than the others, with only moderate shoulders. Mill Hill is the next most distinct Hamburg. It produces short bunches with heavy shoulders, and the berries are usually very large, but as a rule it does not color so well as the Frankenthal. Black Prince is a distinct grape that is rather miffy in its behavior, but if variety is wanted it may be planted with the

Black Hamburg, but it is quite distinct from it, and may be at once detected by its long, tapering bunches, which usually color well, as its name indicates.—*The Garden.*

PRENTISS GRAPE.—Mr. Hubbard sends sample of the Prentiss grape. The bunches and berries are about the size of Clinton, but much more close and compact. The color is amber-green. The skin is thick, and this should render it an admirable shipping and preserving kind.

PRESERVING HOT HOUSE GRAPES.—The writer found among the gardeners in Canada, when in that country recently, that the English plan of preserving grapes in bottles of water was in not uncommon use. The bunches are cut with pieces of stems, and then so arranged that the ends are in bottles of water. By this plan the grapes can be preserved far into the spring season.

YELLOW IN THE PEACH.—The knowledge which those who have made a special study of the matter are sure of, that the peach yellows is caused by fungus growths, seems now to be coming into general acceptance. Secretary Garfield, of the Michigan Society, writes: "The peach yellows is gradually working northward. A few 'sporadic cases' have been announced as far north as northern Ottawa and Kent; but there is a united feeling among peach growers that every case must be stamped out at sight."

BARBED-WIRE FENCES.—Much complaint comes from the injury to cattle from the barbs, from the occasional loosening of the wires, from the staples sometimes drawing out, and from rust unless well galvanized, and more than all from the posts rotting away which is the chief trouble with the ordinary post and rail fence. In a recent run through Western New York the writer noticed that one sensible fellow had planted a line of osage oranges alongside of his barbed fence. Thus if the posts rot away the lines of wire will still be in the hedge and will never need new posts; while the lines of wire running through as long as the hedge lasts will make the most perfect security against all hogs and all sorts of trespassers getting through. Indeed it seems to us that the combination of barbed fence and living plants is the perfection of protective fencing, and certainly far superior to the best methods of plashing ever invented.

SAUER KRAUT.—A Montgomery county, Pennsylvania correspondent of the *Germantown*

Telegraph says: "Last fall and winter an immense quantity of sauer-kraut was imported from Germany, a portion of which found its way to this county, and was pronounced very superior, although I cannot speak of its quality from personal experience. The Germans of Reading prepare it in a way that many consider far better than most other methods. They cut the cabbage into long, thin slices, removing the stringy core, and do not apply salt, but ram it down so tightly in stout barrels that it is covered by its own liquor. They then head-up the barrel, leaving a hole in the top so as to admit of fermentation. In Germany the cabbage is rammed down by a machine propelled by steam. That received in this country last year came in tierces holding sixty gallons each."

COMPARATIVE WEIGHT OF APPLES.—Some years ago when the daily papers were completely exhausted in exciting topics they took pains to show how the poor denizens of large cities were robbed by heartless farmers who would always take the same price for a dozen small eggs as for a dozen large ones. The universal panacea for all evils, an appeal to the Legislature, was warmly urged, and we believe in some places laws were passed commanding eggs to be sold by the pound. The political excitement will be soon over and something new must be thought of. How will an apple campaign suit? It must be borne in mind that a bushel of apples does not always weigh the same. Some apples are naturally denser than others. Ben Davis gives only 40 pounds to the bushel; Vandevere 43; Bellefleur and Winesap 44; Rome Beauty and Rawle's Janet 47; Baldwin 48; Little Romanite 49. Besides this a bushel of small apples of the same kind weighs less than a bushel of large ones. Here is a serious matter for the plundered city man to think over!

THE EARLY FRUITING WALNUT.—In a recent number of the *GARDENER'S MONTHLY*, a correspondent makes some inquiries about the Juglans præparturiens. In a recent issue of *Revue Horticole*, Mons. Carrière gives an abstract of its history.

It was a chance seedling on the ground of Louis Chetenay of Doué-la-Fontaine in 1830. It was first noted in print in the *Annales de la Société d'Horticulture de Paris*, 1840.

Among a number of English walnuts only three years old, Chetenay saw one bearing fruit. M. Jamin cultivated it under the name of Jug-

lans fertilis, under which name it still appears in some French catalogues. Poiteau, in the *Bon Jardinier*, for 1841, gives it the name *J. præparturiens*, which, by priority of publication, will be regarded as its rightful name. It bears when only two years old. Another writer says he had a dozen trees which bore fruit the fourth year—the trees being only three metres high. Occasionally they do not bear until five or six years old. The seeds from the original plant produce trees varying a little, but have the same general character of compact growth, early productiveness and great fertility.

M. Ferdinand Jamin says that seedlings from the original variety produce variable fruit, but all had the early bearing proclivity—fruiting the third or fourth year.

The late Andre Leroy gave it as his experience that in a general sense the variety reproduces itself from seed.

M. Carriere sums up the evidence as being conclusive that the variety comes relatively true from seed; that it produces generally small but very good walnuts, and because of its early bearing character often regarded as a dwarf, though often becoming a good sized tree.

HEDGEHOG.—Among the vegetables offered by Messrs. Vilmorin, of Paris, is one called "Hedgehog," which is described as *Hedysarum cristagalli*. By the common name, which is English, it must be an English vegetable—but it is not in use in our country that we know of. Does any one know anything of it here? Belonging to the leguminous family the bean or pod is probably the part used.

THE ALEXANDER PEACH.—This American variety is pronounced the best of all the early varieties so far tested in England. It seems to grow quite large in their peach houses—usually about nine inches round. The *Florist and Pomologist* gives a handsome colored plate of it in its September issue.

SCRAPS AND QUERIES.

FRUITING OF A LEMON.—"Subscriber," Philadelphia, says: "Can you tell me through the *GARDENER'S MONTHLY* how to prevent the buds from dropping off of a lemon tree before they open? I have had one do this for several years, and am disappointed in not having it fruit."

[A large proportion of the flower buds of

oranges and lemons fall without forming fruit after the fall. This is regarded as a sign that the plant has not vital power to perfect all the fruit. Probably the same explanation must serve when all the flowers fall. Exactly what to do cannot be told without seeing the plant. All that can be said here is that by good soil, good open air treatment in summer, and good culture generally, do all you can to secure a healthy growth. If you will tell what treatment the lemon has received, perhaps some suggestions for improvement might be made.—Ed. G. M.]

JOSEPHINE DE MALINES PEAR.—Mr. A. A. Bessel says: "The best pear to follow Dana's Hovey is Josephine de Malines, commencing to ripen in January and continuing into March. The fruit ripens without any extra care, and like several other winter varieties, is 'much better than it looks,' being only greenish yellow when ripe. Nor is the shape such as would attract notice in the market, being nearly round, and only slightly tapering towards the stem, which is large and fleshy. The flavor of the fruit is a near approach to 'best,' the abundant juice being deliciously sweet, aromatic and refreshing. The Josephine is a long step in advance of the winter pears which require a peculiar and special treatment to fit them for use. The tree has a sturdy look, the wood being short-jointed and the buds heavy, although it is not a fast grower. It will be in great demand when it becomes known, and we hope to see it planted extensively."

NIAGARA GRAPE.—It has always seemed that as apples are divided into the sweet and the sour class, so also ought the grape to be divided into those which are pleasantly tart, and those which have a honeyed sweetness. If such an arrangement should be adopted the Niagara would be found in the last class. We have a basket of these. It is a very fine kind both in bunch and berry, color white, and flavor very sweet.

BOX-GROWN STRAWBERRY PLANTS.—When a number of years ago the *GARDENER'S MONTHLY* first called attention to the great advantage of growing strawberry plants by layering them in small pots, it was thought to be an absurd notion, as the price must necessarily be much enhanced when small pots are used.

At this juncture, B. L. Ryder, the inventive genius who gave us the first grafting machine, the American fruit dryer and other things, came in with a cheap chip box, to be used instead of

a pot, and which would be no object if never used again, and, being square, enabled the plants grown in them to be packed easily for transportation.

Our idea of potting seemed ahead of the times, and so Mr. Ryder's excellent cheap little boxes were not called for. At length people have awakened to the vast advantage of these plants, and Mr. Ryder comes conveniently on hand with his cheap chip boxes, as the reader can gather from the following card:

"We send with this mail one of our box-

growing strawberry plants as a sample. Wish you could find time to examine it and to compare with a pot-grown strawberry plant. We are anxious to have a fair and disinterested report on what we deem an important improvement on the method of growing plants over the pot system, especially for transportation. You will notice the difference in the root-growth and those in pots."

We can only add, if we have not already made this clear, that we heartily endorse the boxes referred to.

FORESTRY.

COMMUNICATIONS.

SUCCESION OF FOREST GROWTHS.

BY R. DOUGLAS, WAUKEGAN, ILLS.

This is an interesting and very important subject, which has occupied my mind for many years.

My observations lead me to believe that when forests are cut down by the woodman's axe, and the fires kept out, they, in the main, reproduce the same species, as there are nearly always enough trees left to seed the ground, and, if a pine forest, decayed logs, brush, &c., to protect the young seedlings from the sun till they can take care of themselves.

Where a settlement is formed, and cattle allowed to run in the cut down woods, is an exception, as in that case the seedlings are destroyed as they appear. In a burnt forest everything is changed, all vegetation is swept away, even the soil is changed, and the surface soil, if thin, is destroyed.

It is very interesting to me to watch the process this burnt land has to pass through before it is re-clothed with timber. The first tree that will make its appearance is the Aspen, *Populus tremuloides*, a tree which naturally grows on low moist lands; this tree predominates, as far as I have noticed, in the burnt forests in Colorado, Wyoming, Dakota, in the Black Hills, in Minnesota, Manitoba, Wisconsin and Northern

Michigan. In Wisconsin, and in the Black Hills, it is mixed with the White Birch; in North-eastern Wisconsin sometimes the White Birch predominates.

The Aspen is well adapted for this purpose, as when a fire runs through the forest and destroys all other trees, it, being in the damp places, even if burned to the ground, throws up suckers from the roots, forming trees; seeds when young, the seeds ripen in spring, fly like thistle down, and germinate immediately. The burned surface is the very best place for small delicate seeds like these to germinate. Indeed they could not germinate except for the land being burned over; for it is a noticeable fact that where a land slide destroys the timber, you never see the Aspen taking its place.

It is easily to be seen that the coniferous trees have not an opportunity to reproduce themselves, for a fire destroys both the trees and seeds, except that sometimes *Pinus Banksiana* may be found in Northern Wisconsin, and *Pinus contorta* at high altitudes in the Rocky Mountains, mixed with the Aspen in burnt forests; but as both these species have very hard and persistent cones, the fires may not always consume them; in that case it would be very likely to burst the scales and put the seeds in proper condition to germinate. Be that as it may, the fact is apparent that these are the only two kinds that can be found reproducing themselves under such circumstances as are related above.

Next to the Aspens and White Birch are other kinds of trees and shrubs, such as have seeds that are blown to great distances, or such as remain for long periods in the ground or are carried by birds.

Where the oak and pine forests are contiguous, the oaks will be found gaining on the pine lands. This may easily be accounted for as the oaks renew themselves from the roots, or rather from the stumps, while the pines never do. Besides this, acorns may be buried by squirrels, &c.; at all events the oaks are encroaching on the burnt pine lands, where they stood adjoining and partially intermixed—as they always are—before the fire.

A few oaks, and now and then a few black cherry, are the only valuable trees to be found on the millions on millions of acres of burnt forest lands. It is certainly time that some method should be adopted to prevent the frequency and extent of these lamentable fires; no one, who has not travelled over the forest regions, can form a correct idea of their extent. In most cases they are the result of carelessness, and even recklessness, by which millions of acres that would reproduce valuable timber, merchantable during the next generation, and the next, will be found by our descendants grown up to worthless trash compared to the noble forests of valuable timber we have had in our day.

I have given you the facts as they are. Individuals, like myself, can only deplore, but are powerless to prevent such wanton recklessness. Editors of journals like yours, and the public press generally, should arouse the people, the State governments, or whoever the duty devolves on, to see that some plan is adopted to check this terrible waste.

EDITORIAL NOTES.

SUCCESSION OF FORESTS.—Just now the most exciting topic in European forestry circles is whether a natural succession is more profitable than to wholly plant a new one. So far as we have followed the discussion, the artificials have the best of the argument. The discussion has great interest to Americans, where the forest succession is an important matter.

TREE PLANTING IN CHINA.—Six hundred acres were to be planted in Hong Kong last year. *Pinus sinensis* is the species employed.

TREE PLANTING IN KANSAS.—The six hundred acres of forests planted by Messrs. Douglas & Son, near Fort Scott, have proved to be a complete success, and they are now planting five hundred acres more. They will have 1,360,000 trees planted before April 1, 1883.

AILANTHUS SILK WORMS.—We have heard it stated that silk worms fed on osage orange leaves soon get sick; but Professor Riley says that he has fed them for eleven years successfully, and kept them in good health.

CALIFORNIAN CHESTNUT OAK FOR LEATHER.—The *Lumber World* says this is the most popular tree in California for tan bark.

TREE PLANTING IN CANADA.—Some of those who took an active part in the Montreal Forestry Congress have a practical knowledge of tree planting. Hon. M. Joly has set out 10,000 black walnut trees.

TREE PLANTING IN NEBRASKA.—Last spring saw many thousands of trees set out in Nebraska. Mr. Charles S. Perry set out 12,000, about three miles from Lincoln, Nebraska, all of which went through the summer superbly.

INSECTS ON TIMBER TREES.—It is well known that some insects prefer to feed on rotten or decaying wood, but it seems strange in these days that any should contend that all trees are diseased before an insect will attack them. Yet there were arguments on both sides at the Forestry Congress at Montreal.

A YEAR'S TREE PLANTING IN GREAT BRITAIN.—Those who regard with dismay the cutting-down of trees, and believe that the area of woodland in this country is gradually disappearing, may take comfort from some of the figures stated in the return we publish elsewhere as to the prices for British timber realized during the season 1881-82. From those figures it will be seen that throughout England, Scotland, Ireland and Wales there were planted on various estates during the period under review no less than 3,156,826 trees. Of these, 2,175,826 were planted in Scotland, 646,200 in England, 294,800 in Ireland, and 40,000 in Wales. It is, of course, not easy to get absolutely complete returns, but those we give are well within the mark and prove that there is at least some set-off against tree-felling and the gradual increase of bricks and mortar in these islands.—*Journal of Forestry*.

NATURAL HISTORY AND SCIENCE.

EDITORIAL NOTES.

MR. E. D. COPE AND THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—On two occasions, recently, the GARDENER'S MONTHLY called attention to some misstatements of the *American Naturalist* in regard to the Academy of Natural Sciences.

In the November number of that magazine the following appears: "The Editor of the GARDENER'S MONTHLY, who is also a contributor to the New York *Independent*, has several times recently presented himself as an antagonist of the *Naturalist*. Being placed by our critic in the excellent company of Mr. Darwin, Professor Gray and Mr. Riley, we have permitted our friend to enjoy the diversion all to himself. We had hoped that the failure of his attempted corrections of these well-known authorities would have inspired him with a little caution. But we now think it time to apply the language used by the late Mr. Darwin in a letter to one of our editors, that this gentleman 'is the most inaccurate man he had ever known.'

"We think Mr. Darwin a little severe, however, when he says 'he has done more injury to science in America than he had ever done it good.' If he had said Philadelphia instead of America we should have been more disposed to agree with him."

It has recently been stated in the *Independent*—not by the writer of this, or by his instigation—that though these editorials are nominally by "A. S. Packard, Jr. and Ed. D. Cope," Prof. Packard disclaims all knowledge of them, and we repeat this in justice to that gentleman.

The question at issue between the GARDENER'S MONTHLY and the *American Naturalist* is whether or not its attack on the Academy of Natural Sciences of Philadelphia was just. The *Naturalist* cannot be allowed to evade the issue under cover of an attack on the editor personally. This attack would not be noticed at all, but for the injustice it does to the distinguished gentleman named. Whether or not Mr. Darwin ever wrote just as he is made to appear here may well be questioned; but even if he did,

"the Editor of the GARDENER'S MONTHLY" well understands how, in moments of pique, to which the most amiable of men are exposed, they will exhibit in the privacy of confidential correspondence weaknesses they would be ashamed to show to all the world. The one who unveils this infirmity is the one to be despised. If the reputation of the "Editor of the GARDENER'S MONTHLY" were all there was at stake we should rest here. All this he intends to leave to the unbiassed decision of those who shall come after when he is gone, and who are but boys now.

But it is only justice to the memory of Mr. Darwin to say that he was sorry for the sharp letters he had hastily written, and that the writer believes from Mr. Darwin's correspondence that he had his regard to the last.

So also as regards the other two gentlemen to whom Mr. Cope attempts to cling in his descent. There are too many evidences of their respect and esteem, both published and unpublished, for the "Editor of the GARDENER'S MONTHLY" to permit himself to be worried, even should they be found in a moment of weakness, where Mr. Cope has placed Mr. Darwin. It is pleasant to feel that one has the good will of his fellow-workers in any cause; but "the Editor of the GARDENER'S MONTHLY" would despise himself, as the gentlemen named in their cooler moments would despise him, if he should attempt to secure their applause by being the mere echo of their sentiments. Free discussion is welcome only to friends worth having.

As to the matter of the scientific differences of opinion which the "Editor of the GARDENER'S MONTHLY" may have had with the gentlemen named, they are matters of record, and these gentlemen are no doubt as perfectly well satisfied as he is that posterity shall judge as to their accuracy. The difference with Professor Cope is of a totally different character. While his remarks heretofore on the Academy of Natural Sciences, and now on the Editor, were inspired by malignity—their's were dictated merely by an honest desire for truth.

HYBRID NEPENTHES.—In our former remarks on the curious family of *Nepenthes*, or Pitcher

plants, it was very difficult to account for the many peculiar forms they presented in a state easily these natural forms may be changed by art, and that these forms, so far as we can judge



NEPENTHES MORGANÆ.

of nature, on any hypothesis of good to the individual or the race. Perhaps these reflections may be carried further when we consider how from any physiological reasoning are just as well adapted to make their way through the great "struggle for life," as those which are sup-

posed to have been evolved from direct contact with this struggle.

We give here an illustration for the reader to compare with the others of one of these artificial productions, a hybrid raised by one of our correspondents, Mr. James Taplin, when he was superintendent of the famous establishment of Mr. George Such, of South Amboy, New Jersey, and named by him *Nepenthes Morganæ*, in compliment to Mrs. Morgan, the well-known plant lover of New York. The stock was secured by Messrs. Vietch, of Chelsea, London, who thus describe it. "It is of a dwarf neat habit, furnished with smooth pale green leaves with red midribs. The pitchers are flask-shaped, with two rather narrow ciliolate wings, when fully grown are from six to eight inches in length. On the younger plants the pitchers are beautifully mottled with bright red and pale green; in the older plants they are almost self-colored and blood red. The lid is always pale green, offering a remarkable contrast to the richly colored ascidium or urn.

FLORIDA JUTE.—This proves to be the *Urena lobata*, a West Indian plant naturalized in Florida.

WHITE FROST NEAR PARIS.—The *Revue Horticole* notes the unusual earliness of white frost around Paris—September 13, 14 and 15—and asks is this an indication of an early and severe winter? In America where we are accustomed to all sorts of extremes, it would not be so considered.

THE FIRST FUCHSIA.—The genus *Fuchsia* was so named by Plumier in 1703. He found the plant in San Domingo—and it was called by Linnaeus, *Fuchsia triphylla*; the later *Fuchsia triphylla* of Humboldt, Bonpland and Kunth being another plant, as shown by a recent memoir of Mr. W. B. Hemsley. Strange to say this original species has only recently been introduced to the notice of English cultivators through the enterprise of Mr. Thomas Hogg, of New York.

ANOTHER SHEEP KILLER.—Among the enormous number of plants reported to be "poisonous to sheep" must now be added *Melanthera hastata*, a pretty Southern weed allied to the *Zinnia*, which F. L. Dancy says, in the *Florida Dispatch*, is a "deadly poison to sheep."

THE AILANTHUS SILK WORM.—This was introduced from France to America, about the beginning of the war, by the late Dr. Thomas

Stewardson, and is now quite naturalized on ailanthus trees about Philadelphia.

FLOWERS IN EGYPTIAN HIEROGLYPHICS.—Commodore Macauley, of the United States navy, has recently published a "Manual for the Use of Students in Egyptology." He gives the ancient signs, as found used in their inscriptions, the modern Egyptian word for these signs, and the English word which stands for them.

It is extremely interesting to note that our word "flower," in Egyptian "herer," before letters to represent sounds were invented, was represented in this ancient sign language, by the *Nelumbium* or *Lotus* and the *Rosebud*. The *Lotus* is represented by a full face view, with fully expanded petals. The *Rose* is given as a side view—as in a comparatively young bud. Though Commodore Macauley does not say so—rendering both simply as meaning "a flower"—it may be that, as the two figures occur independently, a full blown flower was intended when the *Lotus* was used, and a mere "flower bud" or unopened flower by the *rose*.

POTATOES FROM TOMATO PLANTS.—Mr. Barron, of Chiswick, in a paper read recently before a learned society in the Old World, says on the authority of "Prof. Beal, of Agricultural College, of Lansing, Michigan," that a potato scion set into a tomato plant induced the latter to set small tubers in the axils of its leaves, as are seen sometimes on the tops of potatoes. The grafting of an *Artichoke* plant into a *Sunflower* caused the latter to form tubers underground. We do not believe that any tomato ever put forth tubers in the axils of the leaves as here stated. To the best of our recollection Professor Beal did not give this as fact in his lecture, but simply reported that he had "heard so."

THE HOUSE FLY AND DISTRIBUTION OF POISON GERMS.—Dr. Thomas Taylor, of Washington, read a paper before one of the sections of the recent meeting of the American Association at Montreal, in which he suggests that the house fly may be the carrier and distributor of germinal virus, which we now know to be at the bottom of many diseases. Dr. Leidy, President of the Academy of Natural Sciences of Philadelphia, showed before that this is actually the case. Like all useful things—for they are scavengers—the fly has its bad traits.

HERBARIUM OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—An extremely interesting note on the Herbarium of the Academy

of Natural Sciences of Philadelphia appears in the late number of the *Bulletin* of the Torrey Botanical Club. The institution above named was formed primarily for mutual aid to study among the members of the body. But, besides this mutual aid it has taken a pride in aiding science all over the world. All this has been done by the free labor of the members and their friends. Not a dollar has ever been given by city or State, or any endowment made toward maintenance to any material extent by outside parties. In view of its eminent services a fine building was partially given it by citizens; but nothing toward the increasing expenses the large building brought. The Herbarium is a fine tribute to this long series of voluntary work. Collins, Elliott, Pursh, Baldwin, Le Conte, Conrad, Nuttall, Torrey, Durand and Pickering are among the famous dead that have aided in bringing it up. Many other famous names, who have taken part in this great work, directly or indirectly, are mentioned—the names of Schweinitz, Bentham, Hooker, Asa Gray, Von Martius, Ruschenberger, Styles, Lesquereux, Ravanel, John Stuart Mill, Dr. Short, and most of the living celebrities of botanical science. Parmentier, the celebrated physician, made the first presentation of specimens about 1812. It is difficult to tell how many good species the Herbarium contains; but it is not less than 40,000 or 45,000, although other estimates place it much higher. National use could be made of this valuable material if some Smithson would arise just now to step in and go beyond what voluntary work can possibly do. Much is being given to new enterprises. A little once in a while to finish those that are well begun would do no harm.—*The Independent*.

JAPAN LACQUER.—The Museum of Kew has recently been enriched by a very fine collection of Japanese lacquer-work. The collection, which was obtained especially for the Museum by the Acting Consul at Hakodate, under instructions from H. M. Charge d'Affaires at Tokio, is extremely complete, and illustrates the whole process of manufacture. Thus, for instance, there are specimens of the trunk of the Varnish tree (*Rhus vernicifera*), showing the deep cuts through the bark, made in a horizontal manner and close together, by a sharp, gouge-like instrument, which is also shown, as well as several other instruments used in various branches of the collection of the lacquer or its preparation. There is also a neatly made pot for holding the

lacquer as collected, constructed from a simple joint of a large Bamboo stem; a large series of lacquer as collected from the stems or as prepared, and a complete set of tools, such as fine and coarse brushes, made of human hair, rat's hair, &c., spatulas, burnishers, and a series of colors used in decoration. Besides these there is a very fine and instructive series of lacquer-work, from the earliest stages to the most highly finished examples, some of which are of great age, one, for example, being 120 years old, and of exquisite workmanship. The processes through which good lacquer-work passes are both tedious and numerous; the results, however, are wonderful accuracy in every detail, many of the designs, especially those representing plants and flowers, being worked with so much care as to be in many cases botanically correct; this is particularly the case with the gold work on wood, both flattened and raised. The collection is all the more valuable because it is said that good lacquer-work is becoming more and more scarce, the demand for cheap articles in the European markets being so great as to induce lacquer-workers to turn their attention to the class of goods which meets with a ready sale, to the neglect of the more costly and consequently more carefully wrought. The value of the collection is also increased from the fact that a very elaborate account accompanies them descriptive of the collection of the juice from the Varnish trees, its subsequent manipulation and final application.—*J. R. Jackson, in Gardener's Chronicle*.

NIGHT CLOSING IN THE LEAVES OF PURSLANE.—Mr. Meehan noted that in the list of plants having diurnal or nocturnal motion *Portulaca oleracea* did not appear. At sundown the leaves, at other times at right angles with the stem, rose and pressed their upper surfaces against it. The morning expansion began with dawn, and soon after sunrise the leaves were fully expanded. Mr. Isaac Burk also discovered it, as also in an allied plant of the West Indies, *Talinum patens*.—*Proceedings of the Academy of Natural Sciences of Philadelphia*.

SUMMER MIGRATION OF THE ROBIN.—Mr. Thos. Meehan remarked that Audubon, Nuttall, Wilson and other eminent ornithologists had suggested that the seasons had evidently not so much to do with the migrations of birds, as the question of food, though most authors connected this question of food with the autumn or winter

season. He said he had recently observed the migration of the Robin (*Turdus migratorius*) in great numbers during the ten days prior to August 1st, or on the evenings of those days, for the flight was from about sundown to dark. They came from the north-west and were flying south east. Some were but a few hundred feet, but others were so high as to be scarcely visible, which would indicate a long journey. Robins had abounded on his property in Germantown during the past spring and early summer. He might say without exaggeration there were many hundreds of them. On the day of this communication, August 1st, it was rare to meet with one. He considered the disappearance wholly one of food. On his grounds there had been no rain of any consequence for two months. For two weeks past numerous trees and plants had to be kept alive by artificial waterings. Examining the dry earth after the harrow showed no signs of insect life. The cherry crop had been nearly a failure. The usual berried plants, such as Dog-wood, on which they usually fed, were not ripe. There was really little for them to eat—and he had reason to believe that the same conditions prevailed all over northern Pennsylvania. In New Jersey, plants with berries were ripening, as they were also further south, and he concluded that this search for food was in this instance the cause of the early migration.—*Proceedings of the Academy of Natural Sciences of Philadelphia.*

SCIENTIFIC ACCURACY.—Considering the immense amount of rapid work which has to be done by the American conductors of magazines, it is not to be wondered at that they make mistakes sometimes. Yet it is well known to those familiar with foreign periodicals that the American serials are certainly not behind any of them in accuracy. A correspondent sends us the following, which was noted in our columns a year ago, as a singular mass of error from a London paper, but which seems to be still "going the rounds."

"Among the wonders of the 'Wild West' that have recently been discovered is a vegetable compass. The American Association for the Advancement of Science publishes in its 'Transactions' a report penned by General Abford, of the United States army, and treating of an extraordinary plant growing wild in the States of Oregon and Texas, the leaves of which point due north and south, and are consequently utilized by belated prairie hunters as convenient substitutes for the magnetic needle. Professor

Gray Meehan, who has examined specimens of this gifted shrub at the request of the association, defines it as a dwarf variety of the Osier, named *Silphium laciniatum*. It is perennial, and attains a maximum height of three feet six inches."

Our correspondent says: "This ought to go into the *Naturalist* as an example of scientific accuracy out of America."

LADIES' TRACES, OR TRESSSES.—There is no more interesting study than the study of words, and when in connection with floral history the study of words is quite fascinating.

In the early Anglo-Norman times the word trace is used to signify a cord—and ropes and cords used in ploughing or hauling came to be called traces as such parts of harness now are termed. This we learn from old dictionaries extant.

It is curious to note how words change their application in time. Hose, in those days was the upper part of the leg of a stocking, and was attached to the body of the breeches. When it was separated the whole stocking in time became hose, and what was hose in the former times, became the leg of the pantaloons.

So this connection of braided cord with trace became so entirely lost, that when Mr. Curtis wrote the *Flora Londoniensis*, he could see no meaning to "Ladies' traces" in relation to the pretty wild orchids of that name, and he wrote "the protuberant germina, placed regularly one above another, somewhat resemble plaited hair, whence, perhaps, its name of Ladies' traces, or, if this conjecture be correct, Ladies' tresses."

Dr. Prior, and other authors have adopted this guess, evidently without thought, using indeed almost the same language, changing merely the term "germina" to "ovaries," but omitting the words "perhaps," "if," and "conjecture," and Curtis is then made "authority" for the word tresses, instead of the original traces. It is much more in accordance with the olden language to guess that "Ladies' traces" may have been white silken cords; as against plow or horse traces which were of braided hemp or braided leather.

Tress has rarely if ever been used in England in the sense of "braided hair." Moore, Shelley and other poets, in fact use both words in separate senses in the same sentence. The old French and perhaps the old English used tresse to signify the clasp or cord which kept braided hair together; while trace in France was used precisely as in the old English times. Tress in connection with human hair seems to have been used in only recent times, just as it seems to have been in

England. The oldest French dictionary at our command *Le Dictionnaire Royal*, does not mention it at all in connection with humanity, but says it is the curly hair of horses, or the curly wool of sheep. There are some indications that it was used by the old Romans in connection with braided hair, but in this sense it does not seem to have been employed in old England wherein the word "Ladies' traces" originated for our pretty plant.

Halliwell's dictionary of English localisms

gives no support to the idea that "trace" is a corruption of "tress."

The statement made in the "*Flowers and Ferns of the United States*," that there is no reason for changing the good old English "ladies traces" for ladies' tresses, has been considerably commented on in England, and the "Authority of Withering, Prior," &c., adduced against it. We have been thus moved to go a little more fully into the matter here, hoping it may interest those who love to look into the histories of things.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

THE OLD AND NEW, OR "GOD'S ACRE" MADE BEAUTIFUL.

BY WM. T. HARDING, MOUNT HOLLY, NEW JERSEY.

A judicious observer says:—"Churchyards and cemeteries are scenes not only calculated to improve the morals and tastes, and by the botanical riches to cultivate the intellects, but they serve as historical records."

It is generally admitted there are no such beautiful cemeteries in Europe, as are to be seen in this country. At least, not as regards the grand landscape effects, which render the American "cities of the dead," so different from those of other lands. Not that there is any lack of taste, or appreciation of the beautiful, elsewhere among the people, but where utility is paramount to all other considerations, they are absolutely precluded from practically adopting the extensive landscape lawn system prevailing here.

Although the British empire is undoubtedly of vast extent, they are nevertheless very much circumscribed for want of room within "Albion's sea girt isle." And more especially is that the case as regards cemetery grounds, which in consequence are more limited in size. The difficulty of obtaining available land sufficient for such purposes, to say nothing about the cost, in a great measure prevents them from devoting so

much space for mere ornament. And yet, with all these disadvantages, there are many excellent examples of gardenesque cemeteries in England, as travellers often testify.

The well-arranged modern cemeteries of to-day, with all their monumental grandeur, floral adornments, and fine landscape accessories, bear but little resemblance to the unassuming old church-yards where, for ages past, our ancestors have gone to their dreamless rest. Beautiful indeed as is much of the rural scenery of "Merrie England," where

"Town and village, dome and farm,
Each give to each a double charm;"

yet is incomplete without the ivy-mantled little church and its quiet burial ground in the picture. And perhaps no other objects than the quaint architecture of the village churches have afforded more subjects for the artist's brush and pencil than have these antique objects of exquisite beauty. And whoever musingly walks through an old church-yard, with its solen mien and its many monuments of decay, with their pointing analogies on every side, has not felt better for the meditative mood which engrossed his feelings?

The cheery presence of sweet flowers, now everywhere so lavishly used, effectually dispels all semblances of gloom which, in former times, was supposed to be consistent with the neglected sombre graveyards, as they used to be, even since the writer's recollection. And as trees

and shrubs give a serene beauty to the landscape, their quiescent appearance is wonderfully picturesque about our final resting places.

"The church-yard yew," so common to the ancient burial grounds of England, is indeed an object of veneration, as the poet Gray thus graphically describes one :

"Beneath those rugged elms, that yew tree's shade,
Where heaves the turf in many a mouldering heap,
Each in his narrow cell forever laid,
The rude forefathers of the village sleep."

While recently in Derbyshire, I visited the celebrated yew, which still exists in the church-yard of Darby Dale, and where the bones of the villagers, in their many long years of repose, have calmly slept in its solemn shade. This time-honored tree, whose leaves seem as fresh as ever, after a computed existence of more than one thousand three hundred years, is still in appearance a hale green tree. The venerable evergreen measured a little over twenty-eight feet in circumference, and is between fifty and sixty feet high. Notwithstanding its extreme great age, it exhibited no signs of decay in its weird old trunk and branches.

I remember another umbrageous and secluded church-yard, through which I strolled one afternoon in June, where the odor of musk roses, honeysuckles and jasmines, which gracefully festooned the tops of some old hawthorns, were blending their fragrance with the new mown hay in the adjacent meadows. While resting on the old rustic stile, I noticed near by both violets and primroses, though out of flower, nestling among the fronds of the curiously-fashioned *Scolopendrium crispum* and the graceful little *Asplenium viride*, with *Veronica officinalis*, all so meek and pretty. While scattered along the copetones of the surrounding wall, where the mortar was loose and crumbling, green patches of *Sempervivum tectorum*, *Sedum acre*, *Linaria cymbalaria*, *Asplenium trichomanes*, and *A. Ruta-muraria*, with moss and lichens in abundance. Nor was there wanting among them the old wall flowers *Cheiranthus fruticosus* and *C. Cheiri*, once the glory of our grandmother's gardens, and so sweetly scented as any which grew therein. While sacred to the memory of other days, and so grateful to the olfactory sensations of the good and simple folk who lived and died among them, grew sturdy bushes of those universal favorites, the sweet old Provence and rich Damask roses, of exquisite perfume, so dear to all true lovers of flowers. Of these

olden beauties, *Rosa damascena* was welcomed by our ancestors in 1573, while *R. moschata* and *R. provencialis* came into favor in 1596, during the reign of "Good Queen Bess." And notwithstanding the many excellent additions to the Rosary since then, they have held their own among their numerous gay competitors for admiration ever since. And still another old and curious fashioned kind was there, no less than the famous striped red and white York and Lancaster rose, whose history dates from the time of the marriage of Henry VII., of Lancaster, with Elizabeth of York, which settled their bloody feud sometime between 1485 and 1509, Everything around bore evidence of remote antiquity, and even the rose bushes seemed aged like the rest.

Incidentally, in connection with these admirable old roses, I would like, in ideality, to carry the reader back to the beginning of the fifteenth century, when Henry IV. was king. The scene is in a country church-yard, October 25th, 1402, wherein the rose is made to play an important part.

Quoting from "Cullom's Antiquities," the following remarks will convey to the reader's mind the recognized importance of roses in the affairs of the goodly folk of the olden time.

"Sir William Compton granted to Thomas Smyth a piece of ground called Dockmadvie, in Hausted, for the annual payment of a rose, at the nativity of Saint John the Baptist, to Sir William and his heirs, in lieu of services; dated at Hausted, on Sunday next before the Feast of All Saints, 3 Henry IV., 1402."

It seems to have been a common occurrence in ancient times to date important deeds on Sunday, in the church or church-yard, where it was usual, according to long custom, to execute them. The reason assigned for it was to give greater publicity to the transaction, in the presence of God-fearing people, who were then assembled to worship Him.

The Romans, in their fondness for roses, left legacies in their wills, so that their tombs might be annually decorated with this sweetest of flowers, a practice said to be introduced by them into England. Both Camden and Aubrey speak of the church-yard in their time as "thickly planted with rose trees."

While in "the sacred precincts of the dead," with pensive feelings pondering over the past, and vaguely speculating upon the future, memory aptly recalled the almost forgotten lines with

which Anacreon describes the superstition of the Greeks, who innocently believed the rose protected the remains of the dead.

"When pain afflicts and sickness grieves,
Its juice the drooping heart relieves;
And after death its odors shed,
A pleasing fragrance o'er the dead.
And when its withering charms decay,
And sinking, fading, die away,
Triumphant o'er the rage of time,
It keeps the fragrance of its prime."

Happily for us, the present halcyon time in which we live is appropriately designated "the age of flowers." And after a close observation of the old and new, it thus appears to the writer's conception of what will come to pass "after we have shuffled off this mortal coil;" we are destined to sleep in some beautiful umbrageous spot, "where soft vernal fragrance clothes the earth," as nature fashioned it; or the imitative landscape gardener has deftly laid out, "where sighs of devotion are breathing of flowers."

EDITORIAL NOTES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

PATRICK BARRY (See Frontispiece).—In accordance with a plan formed a few years ago, to give to our readers, as a frontispiece to the annual volume, a portrait of some one of our own times who may have been distinguished in horticultural literature, we now offer one of Mr. P. Barry, whose pen has had a widespread influence on the great advance which horticulture has made in America during the past quarter of a century. In fruit culture especially, Mr. Barry's services stand pre eminent. He had long been known as an effective writer through papers in different periodicals, when in 1852 his first great work "*The Fruit Garden*" appeared. This was so popular that another edition was issued in 1855. In 1852, Mr. A. J. Downing was drowned during the burning of the Henry Clay on the Hudson River, and the *Horticulturist*, which with Mr. Luther Tucker, of Albany, he

had established, was purchased by James Vick, and edited by Mr. Barry, in whose hands it remained two years, until 1854, when it was sold to the Smiths in Philadelphia. The greatest work of Mr. Barry, however, is probably the "Catalogue of the American Pomological Society," the preparation of which, as chairman of the committee, has been chiefly his work. This is the great guide for American fruit culturists, and has long been the admiration of the world. Until recently the association had a vice-president from every State, but no one especially designated as vice-president of the whole body. The office was created a few years ago, and Mr. Barry unanimously chosen as first vice president, to which office he was re-elected at the last meeting.

For more than twenty years he has been President of the Western New York Horticultural Society, one of the most useful and flourishing of its kind in the United States.

He has also taken an active interest in agricultural affairs, has been President of the New York State Agricultural Society, and is at present a member of the Board of Control of the New York State Agricultural Experiment Station.

As a nurseryman, Mr. Barry's career is well known; and in connection with Mr. Ellwanger is regarded as among the remarkable horticultural events of our times. Yet this success has not been the result of mere favorable circumstances, as some young men are apt to believe, but by the steady cultivation of honest business ability, which is within the reach of all who persistently try to deserve success. Indeed there are many who had much greater early horticultural advantages than Mr. Barry, for it was not till after his immigration from the Old World that he turned his attention to horticultural pursuits. His father was a farmer near the city of Belfast, Ireland, where Patrick Barry was born in 1816. He was given a good education, and at eighteen was appointed school master of one of the national schools. Two years later he resigned in order to try his fortune in the New World. In his twentieth year we find him acting as clerk in the then celebrated Linnæan nurseries of the Princes at Flushing, in which capacity he served four years, having achieved in that time, with his wonderful facilities for learning, a thorough knowledge of the nursery business. Fixing on Rochester as the most eligible location, he formed a partnership with Mr. Ellwanger, and started business on seven acres of

land. This was in July, 1840, and was the foundation of the celebrated Mount Hope nurseries.

As in the case of so many men who seem not to have a moment to spare, Mr. Barry has been often called on to serve his fellow citizens in public capacities. He has served many years in the City Council of Rochester, and as a member of the Board of Supervisors of Monroe County. Besides all this, and the time necessary to the oversight of his great business, he busies himself in many enterprises tending to the prosperity of Rochester. At the time of the visit of the writer of this sketch to Rochester, with his brother nurserymen in June last, he was acting as President of the Rochester City and Brighton Railroad Company, President of the Flour City National Bank, President of the Mechanics' Savings' Bank, President of the Rochester Gas Company, President of the Powers' Hotel Company, and possibly interested in as many more. In his domestic relations Mr. Barry has been happy. Marrying in 1847 the wife who has shared with him the hardships, the successes, and the honor of his career, they both have lived to see, in their descendants, children who are doing honor to their name. Let us hope that they may yet both be spared for many years to continue honoring humanity by their useful lives.

INDEX TO THE GARDENER'S MONTHLY.—THE GARDENER'S MONTHLY never permits the advertisements to crowd on its reading matter. No matter how large may be its advertising list, the reader always gets the full thirty-two pages.

With the increasing prosperity of the magazine, a few years ago, the publisher felt encouraged to give some good picture as a frontispiece to the bound volume. Though not in the original programme, this has been maintained.

Continued encouragement from an increasing subscription list induced him, last year, to a new departure, namely, the giving of the index entirely in addition to the thirty-two pages of reading matter. Previously this had been included in the thirty-two pages. This he again feels warranted in doing this season.

Outside of its agencies, the GARDENER'S MONTHLY has to depend very greatly on the good will of its friends to make it known to those who do not subscribe. Zealous lovers of horticulture are often too scattered to be effectively reached by advertisements in the ordinary newspapers of the day. But this misfortune has its very great advantages; for while the publisher makes

use of his readers in getting the magazine known, he can return the compliment by making a cheap magazine for the reader, and cheap rates for the advertiser. In these respects the publisher really believes he offers, at the subscription price, the cheapest magazine of its class in the world.

BUSTS OF OUR EARLY BOTANISTS.—A CASE FOR THE PUBLIC GRATITUDE.—Among the heirlooms of the family of the celebrated McMahon, of Philadelphia, are busts of William Bartram, Muhlenberg the famous botanist of Lancaster, Linnæus, and McMahon, carved for McMahon's library by Philadelphia's famous artist Rush. Though everything else has passed from the family, these treasures have been hoarded to the last. The granddaughter, who owns them, now finds herself necessitated to take charge of her own four orphaned grandchildren, the eldest not seventeen, though her own income is less than a thousand dollars a year. She now proposes to dispose of these busts, and devote the proceeds to the education of these children.

It is scarcely necessary to say anything of the services of the eminent men whom these busts represent. McMahon was to American botany what Gordon and other English nurserymen were to the botany of that country—the intelligent care-taker of the seeds and roots of the botanical collectors of his time, and raised for them the plants necessary to perfect their studies. Nuttall commemorated his services and his friendship in the genus *Mahonia*. His grand work, "McMahon's American Gardening," the first complete American treatise on horticulture, is still a standard work, though nearly a century has passed since its inception.

The American Philosophical Society, the Historical Society, or the Academy of Natural Sciences, would make excellent depositories for these treasures, if any public spirited citizens desire to purchase and present them. Still, should no means be found to secure them for the city, whose reputation these worthies did so much to honor, there is nothing to prevent the learned institutions of other cities possessing them.

The lady, while anxious to get all she can for the purpose desired, leaves it to us to fix the amount to be asked for them, and we suppose \$500 will be considered reasonable for the four.

Should no one feel at liberty to subscribe the whole amount, we should be glad to have the

names and stated sums for which others would co-operate.

CHARLES DOWNING.—We learn, with great regret, that Mr. Downing met with a serious accident through being run down by a street car in New York. The wheels crushed against him, and he was taken into a store insensible. A rib was broken. Though in his eighty-first year, and suffering intensely, his physicians, at this writing (Nov. 12th), speak encouragingly of his prospects for recovery.

STEPHEN HOYT SONS.—Last April this excellent firm of New Canaan, Conn., had their home-stand burned; recently the torch of the incendiary again laid low their magnificent barns, burning up eleven horses and twenty six cows, and all their extensive preparations for fall and spring trade. Besides this loss of trade, they will be out of pocket at least \$10,000 in cash, over and above their insurance. As they are not known to have an enemy in the world, the work is believed to be one of sheer depravity, and they have the sympathy of their neighbors and friends everywhere.

LAWSUIT ON FRUIT TREES.—A case is on trial in the United States Court, in Michigan, between a citizen of Davisburg and a Geneva firm. We are not fully informed as to the trouble, but it appears the owner of the farm claims that 700 of the trees are not the kind he ordered and paid for. What he said about the trees we are not informed, but the Geneva firm had him arrested for libel, and on the preliminary examination the justice considered the evidence sufficient to hold him over for trial in the United States Court.

ELLWANGER ON THE ROSE.—Mr. Shirley Hibberd, in his *Gardener's Magazine*, has a kindly appreciation of Mr. H. B. Ellwanger's excellent little work on the rose. He says: "Mr. Ellwanger has hit the happy medium between a big book and a little one, for his neat volume of only 292 pages contains an immense amount of information—all, indeed, that an amateur rosarian requires for a full enjoyment of his roses. His book must be regarded as a very necessary addition to the rosarian's library, and we expect to see it widely distributed on this side among the ever-augmenting brotherhood of men who love and cultivate the rose."

DR. ASA GRAY.—The numerous friends of this distinguished botanist will be sorry to learn that

he fell recently and broke his shoulder bone. It is some satisfaction to be able to add, as we can do from a pleasant note before us, that it will not probably interfere seriously with active work.

WALTER COLES.—This intelligent young gardener, whose papers in the *GARDENER'S MONTHLY* have so often given pleasure to our readers, has decided to enter the commercial ranks, and has settled himself at Claymont, Delaware. We have no doubt his venture will be a success, as there is plenty of room for first-class business men.

N. H. OHMER.—Twenty-five years ago this eminently successful horticulturist of Dayton, Ohio, was engaged in city business, but broken down in health he was induced to take a small lot, 50 by 200 feet, so as to practice his innate love of gardening. This was the beginning of his great success, both in robustness of constitution, as well as in other ways.

HENRY WINTHROP SARGENT.—As we go to press we regret to announce the decease of this munificent patron of gardening. His beautiful country-seat, "Wodenethe," on the Hudson, was long regarded as the finest specimen of landscape gardening in America, and besides its landscape beauty, contained one of the best collections of hardy trees and shrubs. He was an early friend of the great landscape gardener, A. J. Downing, from whom he derived his earliest lessons, and he edited one of the editions of Mr. Downing's work on this fine art; and published a guide to the finest country-seats in Great Britain, besides contributing numerous interesting articles on the same subject to the *GARDENER'S MONTHLY*. He was the son of Sargent, a celebrated painter of Boston, a graduate of Harvard, a lawyer, and finally a banker. He was a cousin to Prof. C. S. Sargent, the well known botanist and arboriculturist. He spent the winters in Boston, but had not yet removed, and he died on the spot, and amid the scenes he loved so well, in his 72d year.

EDWARD MEEHAN.—Died at St. Clare, near Ryde, Isle of Wight, England, on the 26th of October, Mr. Edward Meehan, father of the Editor of the *GARDENER'S MONTHLY*, in his 86th year. He was born in 1798, at Carrick-on-Suir, in Ireland, his father dying a few months after he was born. He was taken to raise by an uncle, a gardener, named Heffernan; while as he grew

up another uncle, a well-to-do merchant of Carrick-on-Suir, took on himself the task of giving him a first-class education. When old enough to judge for himself he chose his uncle Heffernan's profession, and was put as an apprentice for five years with the gardener of Sir Thomas Osborn, Lord Lieutenant of Ireland. His uncle having moved to London as gardener to Lady Whitbread at Gore House, the boy followed and took a course at nursery work with Watson of St. Albans, and Oxley & Bunney of the Islington Nurseries. From there, though still young, he obtained the position of second gardener in the establishment of Mrs. Barrinot, of which then famous establishment he subsequently became the chief. Marrying here Sarah Denham, one of an old and well-known family of Barnet, he started a large florist's establishment in the Regent's Park, one of the most aristocratic portions of London, but unfortunately too large for his capital, and the end of it was that he returned to his old position in Oxley & Bunney's nursery from whence he removed to the Isle of Wight, where for nearly half a century he had the sole charge of the Isle of Wight property of Earl Vernon or (by the subsequent death of the male representative of the ancient Earldom of Harcourt) Vernon-Harcourt.

The strongest trait in Mr. Meehan's character was a thorough devotion to whatever he undertook to do, and a determination to thoroughly understand even the minutest details of his work. Young as he was when in charge of the Barrinot establishment, the place became famous for the successful cultivation of the Grape and the Pineapple. He was a zealous student of Botany—and a great admirer especially of the Linnæan system to the last. By its aid he obtained a knowledge of nearly every British plant known in his time—and it was extremely rare that any cultivated plant could be brought to his attention, with the name and history of which he was unacquainted.

His devotion to principle was most remarkable, and led to the erection in the town of Ryde of one of the most beautiful and costly public edifices, by the Countess of Clare, in admiration, as the *Isle of Wight Observer* states in its remarks on Mr. Meehan's career, of his persevering enthusiasm in its cause.

The esteem in which he was held by his employers was well evinced by the will of Lady Catherine Vernon Harcourt, in which he was retired from actual service with full salary, and

other testimonials of her regard—and the will of Colonel Francis Vernon Harcourt who died the following year, leaving him a testimonial in the shape of \$5,000—while the new proprietor, Hon. Egerton Vernon Harcourt, evidenced his regard for the old family friend by appointing the younger son to succeed his father in the management of the estate.

PENN MEMORIAL TREES.—On the 9th of November, a stone was planted on the spot at Chester where William Penn first set his foot on American soil, and three trees were planted around it by the Historical Society of Pennsylvania, and the Penn Club of Philadelphia. Mr. Lloyd Smith, a lineal descendant of Wm. Penn, planted an American Linden; Mr. Justice Cox, a descendant of the interpreter between Penn and the Indians planted an Elm—and Mr. Samuel Chew, a descendant of the famous Chief Justice of Pennsylvania, planted an American Ash. The trees were all raised from Pennsylvania seed—the Elm being of old Philadelphia parentage.

PORTRAIT OF JAMES VICK.—Mensing & Streeper, of Rochester, New York, have executed a beautiful life-size portrait of the late James Vick, which besides being an admirable piece of art, is a very accurate likeness of this distinguished man.

ST. PETERSBURG BOTANIC GARDEN.—Prof. Budd, of Iowa, now traveling in Russia, sends the following to the *Iowa Homestead*:

"Of the Imperial Garden I can only say at this time that under the able management of Dr. Regel, it has attained a proud position. The doctor is now sixty seven years of age, and has had charge of these gardens for twenty-six years. Before coming here he was director of a botanic garden in the mountain regions of Switzerland. He is probably the ablest botanist in Northern Europe. He is really a walking encyclopædia striding over the grounds and talking of the 24,000 species of plants under his charge. We tried to keep up with him for six hours yesterday. We did not observe that he was tired, but we freely admitted that we were. Some idea of the magnitude of the place may be inferred from the fact that the large glass houses, if placed end to end, would extend two English miles. Without exception the plants are in good condition, and are arranged in scientific order. In many respects the facilities offered in the way of suitable buildings, and the classification, seemed better than at Kew. Thirty skilled gardeners are employed to take charge of the different divisions. The running expenses amount to 66,000 roubles per year. It is in no sense a school, and no plants or trees propagated

for sale. Dr. Regel, in company with a business partner, has an extensive nursery about two miles distant from the gardens. This nursery is in one sense also a botanical garden. Plants are grown quite largely of little known species of Northern Europe and Asia for distribution to botanical gardens, private collections, etc., in all parts of the world. Fruit trees are not largely grown. Indeed the soil here is not favorable for growing of fruit or fruit trees; yet here are found very many varieties of the apple of the hardest known varieties. The German varieties in stock, when the scions were sent to our Department of Agriculture in 1870, were long since discarded. The sorts now grown are true Russians, which can stand rough usage. In connection with this nursery I should say that Dr. Maximowiz, the able curator of the Imperial garden, has spent four years recently in the interesting sections of North-western China, Dahuria, the Amoor, etc; very many of the novelties he collected are here propagated for distribution. In like manner the eldest son of Dr. Regel is now collecting in Bokara and other portions of Central Asia under the special protection and auspices of the Russian government. The ancient centres of civilization are proving rich in species and varieties, which have measurably escaped the attention of the economic botanists.

"Of course the Imperial gardens are enriched by these collections, but the propagation of novelties for distribution seems wholly done at the private nursery, on commercial principles.

"The people are an opened-faced, clear complexioned race, who talk Russian with decidedly musical accents. Officials and the landed proprietors usually talk French, and many of them speak English imperfectly. Dr. Regel and Dr. Maximowiz speak English freely, the latter indeed quite as well as a native Yankee."

IMPROVEMENT IN GARDENERS.—One of the most intelligent of Canadian gardeners writes: "Your GARDENER'S MONTHLY I especially prize as containing much and very valuable information, and must be much prized by those who wish to go forward in horticulture. Without such works gardeners will soon find themselves far behind in their ideas, and there are many gardeners who rest on the first they learned, and never get beyond that."

SMALLEST FLOWER IN THE WORLD.—Dr. A. Gattinger, of Nashville, says: "A few days ago, while paying some attention to the autumnal flora, I happened to pass by a small pond on Mrs. Spence's place, near the Lebanon pike, and to observe the 'Wolffia Columbiana,' a plant of such diminutive size that rarely any one would notice it except a botanist, aware of its existence and eager to find it. The surface of the pool is

covered with a green scum, which, at a close inspection, is found to consist of two distinct little plants. The one, a flat and disk-shaped, roundish, floating frond, the size of a lentil, with a few delicate rootlets pending from the lower surface, is the 'Lemna polyrrhiza,' a species of Duckweed. The other looks like very small green grains, scattered between the Duckweed, and forming with this a dense covering over the entire pool. These grains are oval-shaped, measuring from $\frac{1}{8}$ to $\frac{1}{4}$ of a line in length, floating half submersed, and void of rootlets. It is very rarely seen in flower, its general way of propagating being by bulblets, produced at the edge of the frond, and falling to the bottom of the water at maturity. The flower, where it happens to be found, is proportionate in dimensions, almost invisible to the naked eye, and consists of one stamen and one pistil, which burst through a chink in the upper surface of the small frond, and produce one ovule."

AMERICAN FLOWERS IN EUROPE.—It seems to astonish Europeans that good things can come from America. *Reveu Horticole*, a French magazine, notes many good points in the double Bouvardia "besides the interesting fact that it originated in North America."

POPULAR HORTICULTURE.—How words in one country may come to have different meanings in others, is evidenced by *La journal de la vulgarisation de l' Horticulture*. In our language this would be briefly rendered "popular gardening."

PROCEEDINGS OF A CONVENTION OF AGRICULTURISTS, HELD IN THE DEPARTMENT OF AGRICULTURE, JANUARY, 1881. Published by the Department. We have here the papers read and the discussions thereon; the latter, however, do not seem very well reported. Members are made to give replies to questions, which, so far as the proceedings go, were never made; and when a member does rise to answer questions there often seems little relevancy between the two. This sort of reporting is often found in reports of local societies, but would have hardly been expected here. In the discussions on grape culture, Mr. Wm. Saunders is reported as saying that phylloxera has been long observed on the roots of grapes; but that it is only when the plants are otherwise diseased and their normal vitality impaired that the insects prevail to a fatal extent. Prof. Riley suggested that in Europe the appearance of the phylloxera in any neighborhood added immensely to any destruction of

the vine that had formerly occurred, and Prof. McMurtrie, chemist to the department, believed that if the soils were not exhausted of the chemical constituents necessary to the health of the vines, there would be little trouble from other enemies. It is proper to say that we only give our own impression of the views of these several distinguished gentlemen after reading the reporters' notes, which we should suppose, as already suggested, barely do the speakers justice.

THE AMERICAN.—This weekly, of Philadelphia—always interesting, has added to its value by engaging Prof. Angelo Heilprin of the Academy of Natural Sciences, of Philadelphia, to report the proceedings of the different sections, which now only instruct the members present, and remain dead on the minute books. The Academy has grown to such proportions that there is not time for the researches made in every branch of science to be introduced at the usual Tuesday evening meetings, the proceedings of which alone find a place in the regular daily papers. Botany, mineralogy, entomology, biology, and other important divisions of science now have to have separate sections formed for them, and an immense amount of knowledge is brought out in them, which now, through the enterprise of the *American*, will be available to the public as well as the members.

THE NEW YORK INDEPENDENT.—It is a well known fact that many of the so-called denominational religious papers seem to think their duty finished when they furnish their readers with denominational news, or with matter bearing on strictly theological topics. On the other hand, the strictly secular paper too often deals with politics, or silly gossip, so nearly exclusively, as to almost nauseate those who wish to keep pace with general intelligence. As a general rule the subscribers to these papers have to subscribe to a pile of special journals if they would keep pace with the discoveries of the times in the highest departments of mental culture which bears on human progress. The *Independent* is a striking exception to the general rule. While it is to a certain extent denominational in its teaching, it extends its attentions to every branch of human intelligence, and its wonderful success has, no doubt, been owing to the fact that no cultivated person can take up the paper without becoming wiser and better before he lays it down.

FUNGI INJURIOUS TO VEGETATION.—By Dr.

Byron D. Halstead. Reprinted from the proceedings of the Connecticut State Board of Agriculture, 1882.

Horticulturists and agriculturists are not yet fully awake to the immense amount of injury they suffer from the minute plants of the lower order of vegetation known as microscopic fungi. It is barely a quarter of a century since not merely practical men, so-called, but even men of science firmly believed that fungi never existed except on diseased vegetation. Scientific men teach us differently now; but there are some excellent practical men, who still doubt whether these little plants are the cause rather than the followers of disease. It is an extremely important question to the practical man. If these almost invisible plants be not the cause of disease, it is not worth while to care anything about them; but if they be, then we must wage war on them, and the best knowledge in an attack on an enemy is that which relates to his habits and all his secret ways. This chapter by Mr. Halstead is well worth reading, both by the true believers in deleterious fungus agency, and by the infidel. The former will perceive how much is yet to be added to the knowledge we have already gained; the latter may point to the differences of opinion among learned men, but will surely see that something has been gained over old notions, and that at least it is time for him to go over the ground anew. He may ask himself why, if smut and similar organisms be a fungus, and yet not the cause of disease, why he has been for just two hundred years this season, as Prof. Brewer tells us here, trying to destroy it by steeping his seeds in brine, copperas and all sorts of steeps and washes?

An interesting discussion followed Mr. Halstead's remarks on the ergot (*Claviceps purpurea*) and the smut in Indian corn (*Ustilago Maydis*). It is beyond dispute that ergot has powerful medical properties; but we find by this discussion that abortion in cows is claimed for the smut as well as for the ergot by the farmers in Connecticut. It is but fair to say that after balancing the points brought out by the discussion, the smut seems at least more innocent than they suppose.

A very interesting inquiry is suggested by the discussion, namely, how do the spores of fungi enter the plant? The prevailing impression with leading mycologists is that they germinate on the exterior, and then grow into the plant,

penetrating the structure as they grow, just as a mistletoe or other parasitic plant penetrates the tissue as it grows. From some of the remarks of Mr. Halsted it may be surmised that this is his view, though he remarks that the early growth of the spores, from their small size, has never been observed in plant tissues. But we very often learn from circumstantial evidence, as well as from direct observation of the facts; and, if we may say that it is improbable that a spore could be taken into the tissue through the roots, and travel through the structure from

cell to cell, as moisture does, by endosmose action, so also may we say, from observations recorded in this paper, that it seems improbable in many cases that the spores should have reached their germinating points from an external starting place on the surface of the inflorescence.

The intelligent and careful reader of this excellent paper will feel that he has profited largely by the perusal, but still with the encouragement which the explorer loves to enjoy, that there is yet much to learn.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

TRANSACTIONS OF SOCIETIES.—There seems a great want of intelligent reporting in some of the published proceedings of societies. In a large number of cases notices of the discussions might be left out entirely for all the good they are. In many instances it is apparent, from the contents, that the speakers never said what is reported of them, or that the most important has been left out. Before us is one of these reports. Mr. A. is asked if he "will favor the meeting with his experience on the strawberry grub?" Mr. A. is made to reply that he "has had considerable experience with the strawberry grub. Has also used coal ashes to a considerable extent on his strawberry beds."

Of what possible use is a report like this? And yet it is not much below the average of much that is given us.

ASSOCIATION OF NURSERYMEN AND FLORISTS.—Mons. Charles Joly, in a paper read before the "*Société Nationale d' Horticulture*," of France, gives praise to America for instituting such a society, embracing, as he seems surprised to know, 250 members, and believes it would be an excellent idea for France to adopt.

CONVENTION OF HORTICULTURISTS IN BRUSSELS, BELGIUM.—President VanGeert writes: "In order to give to the representatives of horticultural industry of all countries, the occasion to extend mutually their commercial relations and discuss

their common interests, an international meeting of horticulturists will take place at Ghent in April, 1883. The programme will be published in due time.

"As this meeting will coincide with the great quinquennial international flower show, organized by the Royal Agricultural and Botanical Society, interesting entertainments will be offered to the congress members."

THE IMPERIAL SOCIETY OF HORTICULTURE OF RUSSIA.—There will be an international convention of botanists and horticulturists at St. Petersburg, to celebrate the first quarter century of its existence, to extend from the 5th to the 16th (17th to 28th, we believe, of our calendar) of May, 1883. The Grand Duke Nicholas has taken the affair under his patronage. Dr. Regel asks us to invite the presence of such American horticulturists and botanists as can make it convenient to attend personally, or to send papers for the convention or specimens for exhibition, where personal attendance is not possible. French will be the official language of the congress, but papers or correspondence may be in the writers' native language, where French is unknown to them. Twenty to thirty minutes will be the limit accorded to each paper.

HORTICULTURAL SOCIETIES IN THE OLD WORLD.—Under the stimulus of high premiums, careful judging, and a wide publication of the awards, European societies are popular. At a late exhibition at Edinburg there were 2,200 entries, and \$5,000 were distributed in premiums.

INDEX.—VOL. XXIV.

- A**bies concolor and Lowiana, 217
Absorption, Poison by Plant
Roots, 123
Acacia, Farnesian, 213
Acad. Nat. Sci., Phila. 55, 281
" " & E.D. Cope, 371
" " Herbarium, 373
Acalypha marginata, 73
Accuracy, Scientific, 375
Acre, Tomatoes to the, 209
Adiantum Aneitense, 364, 365
Adornment, Small Yards,
130, 162, 226, 281
Æsthetic in Pear Flavor, 146
Age of Trees, 212
Ageratum, 67
Agricultural Education,
" Wilder's Speech, 220
" Grounds, Improvement,
100
" Machine Improvements, 24
" Report, Panama, 126
Ailanthus as Timber, 117
" Health and, 154, 230
" in South Jersey, 149
" Sex of, 313
" Silk Worms, 370, 373
" The, 290
" Timber, 84, 181
Akokia quinea, Glutinous
Stigmas in, 248
Albany Seedling Strawberries,
Degenerate, 307
Allamanda, 296
Almond Growing from
Peach, 21
Alternanthera aurea,
New, 39 [in, 145
America, Foreign Grape
" Forest Growth in, 180
" Peach in, History, 347
American and English Sea-
Tide, 383 [sons, 186
" Apples in China, 305
" Banner Rose, 305
" Botany Contributions,
Candle, 282 [286
" Chestnut, 223 [22
" Early Weep. Willows,
Farmer, The, 62
" Forestry Ass'n, 117, 192
" Game Bird Shoot-
ing, 320 [351
" Journal Forestry 222,
Jute, 145
" Naturalist, The, 62
" Newspaper Annual, 27
" Nurseryman, 285
" Nurserymen's Ass'n.,
192, 256
" Pomol. Society, 190
" Silk & Fruit Cultivist,
320 [Growth, 53
" Timber Trees, Rapid
Vegetables and Fruit,
Wonder Pea, 116 [209
Ames, F. L., Orchids, 202
Among the Elder Bushes,
Amesden Peach, 305 [258
Ancient Ploughing, 26
Anemone nemorosa, Purple,
248 [Tree, 184
Annual circles, Wood in
Anthurium crystallinum, 48
" Scherzerianum maxi-
mums, 60 [num, 23
Apple and Pear Trees, Dis-
ease, 177 [Pear, 207
" as Stock for Seckel
" Baldwin, 116
" Beaufin, or Biffin, 222
" Beauty of Hants, 270
" Bentley's Sweet, 113,
Borer, 176 [147
" Crop, Michigan, 304
" Highland Beauty, 177
" Market, Fruit in, 145
" Native, 178 [209
" Newtown Pippin, 115,
" Rome Beauty, 81
" Trees, Longevity, 114
" Twin, 22 [305
Apples, American in China,
Canadian, Superior, 209
- Apples, Drying Whole, 146
" Dwarf, Success with,
Massachusetts, 211 [148
" Mecklenburg Co., N.
Pine, 210 [C., 337
" Storing, 146
" Very Hardy, 81
" Weight of, 367
Apricot, 251 [ing, 354
Aracantha imbricata, Fruit-
Arbovitae, Derby, England,
163, 288 [in, 308
Arbiculture, Graduate
Arborvitæ, Golden Plume, 7
" Grafted on Retinos-
pora, 228
" Historical Notes, 246
" Siberian, 222
Arborvites, 166
Arch from Pine Tree, 228
Arctic Coniferæ, 91
Ardisia crenulata, 74
Arcia Baueri, 26 [ing, 340
Arguments for Tree-Plant-
Arizona, Notes from, 276
" Vegetation, 153
Arkansas, European Wal-
nuts in, 244
Arnold Arboretum, 70
Arranging Flowers, 170, 363
" Flowers, Science,
350, 372
Arrestors, Spark, 309
Art and Science, 125
" Museums and Uses, 63
" Western, 189
Arun Family, 121
Asparagus, 244
" Plunus, 74, 76 [191
Associations, City Florists,
" Nurserymen & 384
Atamasco Lily, 155 [168
Attendance, Steam Boilers,
Arnpheon, Peculiar, 288
Australia, Flora of, 94
" Grapes in, 305
" Peach Culture in, 210
" Sparrows in, 57
" Timber Culture in, 118
" Tree Planting in, 180
Australian Bottle Tree, 123
" Explorer, Forest, 125
" F. F. Eichardt, 125
" Glory Flower, 41
" Autumn Flow'rs, Berkshire,
Avenue of Cryptomeria Ja-
ponica, 7
Azaleas, Seedling, 203
Bacteria, 62
" in Fruit Diseases, 208
" Theory, 84
Bad News for Tobacco
Raisers, 16
Baldwin Apple, 116 [of, 221
Baltimore, The Hallidays
Bananas from Seed, 58
Barked Wire Fence, 367
Barlett Prof. J. L., Death, 319
Bark Scales Remedy, 51 [261
Baroness Rothschild Rose,
Barry, Patrick, 378
Bassett Plum, 81 [244
" W. F., Strawberry from,
Beal's New Botany, 30, 287
Beaufin Apple, 222
Beautiful Orchids, 169
Beauty Carnation, 205
" of Hants Apple, 270
" " the Dandelion, 291
Beaver Dam, Wis., Catalpa
at, 182 [Tree, 39, 144
Bedding Plants, Brier, 39,
" Some, 198
Bees and Fruit, 81
" Grapes, 17
" Drone, on the Wing, 213
Begonia Schmidtii, 12, 47, 76
Begonias, Tuberosus Riv'oli
Bentley's Sweet Apple, 113,
147 [Flowers, 22
Berkshire Hills, Autumn
Bermuda Grass, 7, 290, 324
" and Lawns, 261
" Flowering of, 21
Best Flavored Strawberries, 244
" Soil for Raspberry, 298
- Bignonia magnifica, 331, 332
" Gustata, 234
Bird Cherry, for Streets, 229
Birds and the Gardener, 115
Blackberries, Rust in, 176
" White, 307
Blackberry, Lucretia, 305
" McCracken, 269 [141
Black Flea on Heliotrope,
" Grass Pest, 366
" Knot, Pacific C'st, 270
Blackman Plum, 82
Blodgett's Golden Cling, 331
Blood-leaved Peach, 325
Trees, 100
Blue Bedder, Brovalla, 35
" Bedding Plant, 30, 67, 99
" Carpet Bedder, 140
" Flowers for Massing, 37
Boilers, Hot Water, 104
" Steam, Attendance, 168
Borders or Beds, 335
Borer, Flat-headed, 176
" Sugar Maple, 277
Boss Watermelon, 307
Boston & Vicinity, Hort., 96
" Hardy Conifera near,
Botanical Index, 27 [227
" Names, Hard, 186
" Notes, New Jersey, 309
Botanic Garden, S. Cam-
bridge, 22, 59
" Melbourne, 184
" St. Petersburg, 381
Botanist, Lucky, 57 [379
Botanists, Early, Busts of,
Botany, Beal's New, 30, 287
" in California, 123
" French Capital, 186
Bottle Tree, Australian, 123
Bottling Grapes, 146
Bouquet, A Royal, 12
Bouquets, Bridal, 139
" Buttonhole, 73
" London Market, 170
Bouvardia Double Red, 48
" Pres. Garfield, 238
Box-grown Strawberry, 368
Bracts and Leaves, 22
Brenham, Tex., Tree Growth
Bridal Bouquets, 139 [at, 244
British Columbia Timber, 53
Brovalla Blue Bedder, 35
Brown's Gynura aurantiaca,
230, 266 [Convention, 384
Brussels Horticulturists'
Budded Roses, 131, 238
Budding Pennyroyal, 134
Bulb Growing, Holland, 249
" Rooting, 116
Burr's Pine Strawberry, 305,
Business of Jas. Vick, 254
Busts of Early Botanists, 379
Butterflies, Otor in, 57
Buttonhole Bouquets, 73
Buzzard, Note on, 182
Cabbage, Early, How to
Grow, 304
" Lines on Head of, 64
Cactus Dahlia, 8
Caladium esculentum, 341
Caladiums, Experiments, 360
Calceola crenatifolia, 300
Calceola officinalis meteor,
40, 132
California, Botany in, 123
" Cook's Ranch, 101
" Encalyptus in, 272
" Filberts in, 210
" Giant Tree, 345
" Grape for, 304 [rope, 133
" Mammoth Tree in Eu-
" nat'ist, John Muir, 219
" Notes from, 355 [155
" Nurseryman's Letter,
" Past Season in, 89
Calla Lily, Yellow, 298
Callipia Purpurea, 357
Calloway Cling Peach, 148
Calochortus, 21 [159
Cambridge Bot. Garden, 22
Camellia Bud Dropping, 109
" Culture, 44
" History of, 157
" Introduction of, 21 [271
Campbell's Triumph Grape,
- Canada, Encouragement of
" Forestry, 340, 341
" English Sparrow in, 270
" Forestry in, 308 [247
" Opuntia Rafinesqui in
" Tree Planting, 370
Canadian Apples, Sup'r, 209
Candle, American, The, 282
Tree, 57
" Wax Tree, 277 [181
Can Fruit Trees be Overfed,
Canis ferox cum Kettle-
bees, 156
Canna Nepalensis, 263
Carey Robt., Death of, 126
" Disappearance of, 95
Carnation, Heauty, 266
Carnations, Detroit, 128, 141,
190, 251
" Winter-flowering, 12
Carolina Jasmine, Dbl. 356
Caroline Raspberry, 208, 269
Carpet Bedder, Blue, 140
Castanea vesca, Queen of,
223, 254 [Wis., 182
Catalpa at Beaver Dam,
Cats in Gardens, 228
Catsup, Tomato, 337
Cattle in Cities, 166
Cattleya Downiana, 300 [298
Cauliflower, 266 [forcing,
Cedar Lebanon, Introduce'n,
" N. Eng., 357 [220
" White, 22
Celery and Onion Essays, 200
" How I Grow, 111
" To Keep Till Spring, 366
Celosia, 123
" President Thiers, 362
Cemeteries, Rural, 131
Centennial, Section of Se-
quoia at, 245
Cephalotrois Fortunii,
" Fruiting Male Tree, 348
Cephalotrois Japonicus, 348
Cestrum, New, 111 [100
Chaunite, Kan., Peach from,
338
Chapter on Water Lilies, 325
Cheap Paint, 292
" Plant Stand, 107
Chemistry of the Farm, 150
Cherokee Rose Legend, 289
Cherry, Indian, 166
" Stocks, 210
" Windsor, 208
" Yellow Choke, 154, 187
Cheshnut Hybrid Rose, 182
Chestnut, 223, 254
" Hoppen & Am., 223
" Oak for Leather, 307
" Sweet, New Dwarf, 39
Chicago, Steam Heating
around, 138, 173
Chickens, Mutheries for, 116
Chief Signal Office, Annual
Report, 96
China, Amer. Apples in, 305
" Daffodils in, 357
" Tree Planting, 370
Chinese Chrysanthemums
from Seed, 106
" Cling Peaches, 338
" Peach, Flat, 270
" Primroses, Improv'd, 74
" Varnish Tree, 91
Choice Grapes, 115
Choosing Hyacinths, 12
Chrysanthemum, A Few
Hints, 38
" Culture, 88
" Japanese from Seed, 262
Chrysanthemums, 73
" Chinese from Seed, 106
" Fine, 8
Churchman's Superb Rasp-
berry, 238, 306
Chysis Cheloni, 185
Cicada septendecim, 274, 314
Cincinnati Floral Co., 9
" Forestry at, 245
" Meeting, 84
" Hort. Exhibition, 288
Cirrhopetalum meduse, 107
Cities, Cattle in, 166
" Frame Buildings in, 341

- City Peach Trees, History of Some, 334
 Cleared Land, How Trees Spread on, 55
 Clerodendron, 71
 " Imperiale, Culture, 300
 Clanthus Dampieri, 41
 Close Trimmings Trees, 322
 Clover in Lawns, 165
 Clubs, Nat. Hist. Work, 21
 Coal & Lignite in Mex., 313
 " Tar, 80
 Cocin China Grape, 177
 " " Tuberous Rooted Grape Vine, 207
 " " Grape, 122
 Coco & Other Grasses, 59, 89
 Codling Moth, 115, 208, 243
 " " Catching with Sweets, 115
 Colognye cristata, 71, 72, 73
 Coffee Substitute, 210
 Cola Nut, Properties of, 122
 " " Grapes for, 122
 Coles, Walter, 380, 382
 Coleuses, Seedlings, 13
 Coleus, New, 12, 300
 Collector's Letter, 218
 "Color in the Dark, 246
 Colors in Spring, 199
 " Note on, 134
 Colossal Fern, 217
 Columbine, Native Dbl., 248
 " New, 228
 Common Names, Coining, 247
 Communications, Delayed and Precedence, 124
 Concord Grape Flaw, 208
 Cones, Fumigating, 245
 Coniferæ, Arctic, 91
 " " Hardy near Boston, Conoclinium lanthimum, 110
 "Convention, Agricultural's, 382
 " " Horticultural's, Brussels, 384
 Cook's Ranche, Cal., Map of, 101
 Cool Orchids, Lælia, 235
 Cope, E. D., and Acad. Nat. Sciences, 371
 Cornelia Cook Rose Legend, 91
 " " House, 205
 Correspondence, Green- Correspondents, Intelligent, " Our, 25
 " " [7, 348, 378
 Corson A. W., Death of, 254
 " " Life, " 278
 Cost, Nursery Products, 285
 Cotton Plant, Hybrid, 247, 343
 Cottonwood in Kansas, 83
 Coxcombs, Large, 361
 Cranberries, Improved, 17
 Crataegus arborescens, 70
 Craze, Rose-growing, 102
 Crickets, Damage by, 248
 Criticisms, Other magazines, Crop, Tobacco, 210
 " " Green- Cross-fertiliz'g Pollen in, 342
 Croton recurvifolius, 138, 139
 " " sinizianus, 237
 Cryptomeria Jap., Ave. of, 7
 Cuba Grass, 122
 " " [na, 357
 Cultivating Daffodils in Chil- Fore-t Trees, 180
 Culture and Management, Native Forests, 245
 " Camellia, 44
 " Chrysanthemum, 40, 168
 Clerodendron Imp., 300
 Eucharis, 105
 Gloxinia, 234, 327
 " Hardy Cyripedium, 70
 Moss, 236, 268
 " [132, 164
 Mushroom, 243
 Olive, 210
 Peach, 176, 209, 210
 Quince, 52, 211
 Raspberry, 270
 Silk, 115
 Teasel, 79
 Cure and Prevent Thrip on Grapes, 70, 113
 Curing Meat, Ozon, for, 64
 " Peach Yellows, 17, 14
 Owl in Peach, 270
 " " [17
 Currant, Indian in Decora- " Fay's, 269
 " " [tion, 170
 " Red, Baby Castle, 146
 Currant, Ruby, 18
 " " Worm Remedy, 116, 148
 Cut Flowers, Arrange, 359, 362
 " " " in East'n Cities, 74
 " " " Paris, 73
 Cuttings from Old Wood, 258
 Cydonia japonica, Coining Hedge Plant, 257
 Cymbidium churruum, 12, 13
 Cypress Family in Tex., 292
 Cyripediums, Hardy, 70, 132
 Cyrtolæira metalica, 47
 [164
 Daffodils in China, 357
 " Dahlia, Cactus, 8
 Dahlia, History of, 282
 " Juarez, New, 39
 Dahlias, Double, 74, 165
 " " Single, 220, 261, 355
 Damage by Crickets, 248
 Danson Dye vs. Danson Pie, 310
 Dandelion, Beauty of the, 291
 Darwinism, 337
 Dark, Color in the, 246
 [159
 Darwin, Charles R., Death, " " Estate, 317
 " " Life, 220
 " " Memoir, 254
 Date Palm, 217
 Datura arborea, 261
 Davallia Filix-femina, 265
 Death & Birth of New Species, 343
 " of Barfoot, Prof., 319
 " " Carey, Robt., 126
 " " Corson, A. W., 254
 " Darwin, Chas. R., 159
 " Decaisne, Jos., 159
 " Hall, Elihu, 350
 " Hooper, E. J., 350
 " James, T. P., 125
 " Leggett, W. H., 159
 " Markey, Jas., 261
 " Meacham, Edw., 380
 " O'Brien, W., 95
 " Sargent, H. W., 380
 " Sherkey, Jos., 350
 " Stone, Geo. A., 221
 " Storr, Jesse, 188
 " Vick, Jas., 188
 Decadence of Gardening in Japan, 228
 Decimal System, 316
 [for, 236
 Decorating, Solomon's Seal Decoration, Dinner-table, 169
 " Indian Currant in, 170
 Decorative Plant, New, 364
 Defective Raspberries, 271
 Desires, Floral, 203
 [200
 Desirable Shrubs, A Few, Desmodium pendulifolium, 89
 " " [Glass, 362
 Destroying Insects Under Deterioration, Strawberry, 146
 Detroit Camellia, 128, 141, 190, 251
 Diamond Tuberose, 25, 40
 " " Dwarf, 357
 Dinner-table Decorat'n, 169
 " " Flowers on, 170
 Dinsmore's, W. B. Resi- dence, 285, 314
 Dicious Trees, Sexual Characters, 275
 Disappearance of a Gar- dener, 95
 [Trees, 177
 Disease in Apple and Pear " on Pear Limbs, 240
 " Tomato, 37, 318
 Diseases and Insects, 336
 " Fruit, Bacteria, 798
 Display of Colors in Spring, 199
 " [125
 Dominy, the Orchid Raiser, Donnelly, M. J., 27
 [Ingr, 305
 Dorman, But. Peach Plant, Double Broods of Insects, 57
 " Carolina Jasmine, 356
 " Catalonian Jasmine, 205
 Double Dahlias, 74, 165
 [357
 " Dwf German Scabious, " Geraniums, Dwarf, 39
 " Native Columbine, 248
 " Red Bourdavia, 48
 " Sloe, 231
 Downing, Chas., 380
 [at, 277
 Drift Deposits, New Gushes, Drone Bees on the Wing, 213
 Drooping, Camellia Bud, 109
 Drow Worm, 40
 Drouth, Protection from, 52
 Drying Apples Whole, 146
 Duke of Connaught Rose, 203
 Dumessil Fertiliz'g Moss, 363
 Durability of Timber, 245
 Duration of Timber in Iowa, 118
 [148
 Dwarf Apples, Success with, " Diamond Tuberose, 357
 " Double Geraniums, 39
 " German Scabious, 357
 " Stocks, Earth of Pears on, 306
 " Sweet Heath, 39
 Dyer's Bird June Peach, 18
 " Early Birds which did not find the Worm, 183
 " Cabbage, How to grow, 208
 [268
 " Cauliflower, Forcing, " Celery to Keep Till Spring, 366
 " Fruiting Walnut, 367
 " Peaches, New, 267
 " Rhododendrons, 229
 Eastern Cuts, Cut Flowers in, 74
 [for, 350
 Editor, Express Packages " Paper by the, 190
 Egyptian Tombs, Flowers in, 124
 [373
 " Hieroglyphics, Flowers, Elberon, 259
 Elder Bushes, Among, 258
 Electric Light, Plant Growth by, 11, 85
 Elements of Forestry, 117, 287
 Ellwanger on the Rose 159
 380
 " New Seedling Roses, 230
 " Rose Crocus, 236
 Elm, Historic, End of a, 212
 Elms of Ohio, 84
 Encouragement of Forestry, Canada, 340, 341
 [163
 England, Derby Arboretum, " French Fruits in, 176
 " Fruit Culture in, 146
 " Notes from, 50
 " Hemlock Spruce in, 230
 English & Am. Seasons, 186
 " Bird Cherry, Streets, 229
 " Names, 247
 " Sparrow in Canada, 270
 Enormous Flower, 246
 Enomology, 222
 [kets, 329
 Epergenes & Hanging Bas- Epiphyllum, Grafting, 300
 Erica Mediterranea, 155
 Essays at Hort. Meetings, 32
 Estate, Chas. Darwin's, 317
 " Fruit Culture in, 146
 Eucalyptography, 134
 Eucalyptus a Success, 60
 " in California, 272
 Eucharis Amazonica, 12
 " Cultivation of, 105
 Eumonym radicans, 236
 Euonymus, 285, 314
 European Chestnut, 223
 " Forests, 150
 " Walnuts in Ark., 244
 Europe, Am. Flowers in, 382
 " Cal. Mam'th Tree in, 133
 " Oranges in, 177
 [170
 Evening Effect, Flowers for Evergreen Hedges under Trees, 291
 Evergreens, Golden, 229
 " Some Southern, 197
 [58
 Evolution of Heat in Plants, Exhibitions, Hort., 31, 32
 Experiments, Caladiums, 360
 " Gardening, 194
 Expositions, Uncertain- ties of, 62
 Express Plugs for Editor, 350
 Family, Arum, 121
 " Farm Journal, 349
 Farnesian Acacia, 213
 Favors, 157
 Fay's Currant, 269
 [in, 244
 Fence Corners, Peach Trees, Fences, Barbed Wire, 367
 Fern, Colombia, 217
 " New, 364
 Fertilization of Kalmia, 54
 Fertilized Moss, Plants in, Fertilizing Moss, 235
 [264
 Fever, Malarial, 21
 Ficus excolata, 56
 [300
 " radicans & F. reptans, Fig Culture North, 79, 144
 " Flowers of a, 55
 Filberts in California, 210
 Fine Chrysanthemums, 8
 " Ohio Thorn, 70
 [340
 Fires, Forest, 248, 245, 272, Flat Chinese Peach, 211, 270
 " Culture, Potatoes, 81
 Flea, Black, on Heliotrope, Floral Designs, 240
 [141
 " Improvements, 238
 " Identities, 188
 " Luxuries, Roman, 252
 Flora of Australia, 94
 Florida Fruit Growing and Jnte, 373
 [Gard'ng, 304
 " Oranges, 305
 " Yellow Water Lily, 325
 Florist and Pomologist, 35
 " Carey, the, 184, 126
 Florists' Union, Phila., 192
 " City Associations, 191
 " Flowers, 67
 Flower, Australian Glory, 41
 " Enormous, 246
 " Garden & Pleasure Ground, 136, 165, 129, 161, 183, 225, 257, 282, 325, 353
 Flower Notes, A Few, 323
 " Smallest, 382
 " The, 63
 [ing, 141
 " White Winter Bloom- Flowering, Bermuda Grass 21
 " Grapes, Imperfect, 176
 " Victoria, region in Open Air, 233
 " White Mignonette, 247
 Flowers & Ferns, U.S., 27, 221
 " " Trees, Sick, 11
 " Amer., in Europe, 382
 " Autumn, Berkshire, 22
 " Blue, for Massing, 37
 " Florists', 67
 " for Effect, 170, 363
 " Fostering Love for, 298
 " Imitation, 238
 " in Egyptian Tombs, 124
 " Growth, Success, 373
 " Night-opening, 45, 54
 " of a Fig, 55
 " of South Carolina, 57
 " on Dinner Table, 170
 " Peach, 177, 241
 " Satisfied with the, 159
 " W. of S., 182
 [638
 Forcing Early Cauliflower, " Strawberries in Pots, 50
 Foreign Grape in Am., 145
 Forest Fires, 20, 180, 245, 272, 340
 " " & Railroads, 253
 " Growth in America, 180
 " sion of, 308, 309, 370
 " Seedlings from, 308
 " Schools, Old World, 53
 " Trees, Cultivating, 180
 " " Growth of, 150
 " " Seedling, 180
 Forestry, 19, 63, 83, 117, 144, 179, 212, 244, 272, 308, 339, 369
 " Am. Journal of, 222, 351
 " Ass'n, Am., 117, 192
 " at Cincinnati, 245
 " Hough on, 117, 287
 " in Canada, 308, 340, 341
 " Joaquin Miller on, 85
 " Legislative, 180
 " Meeting, 84
 " Nonsense, 149
 " Notes, 179

- Forestry Planting, 309
 " Profits, 53
 " Protection, 19
 " Roadside, 368
 " Romance, 150
 " School, 83
 Forests, European, 150
 " Maine, 272
 " Michigan, 181
 " Native, Culture and Management, 245
 " Poor Land for, 212 [19
 " Protection Necessary, 19
 " Raintail and, 273
 " Washash Valley, 341
 " Water Changing Character of, 183
 Forks and Spades, 229
 Forrest, John, Australian Explorer, 125
 Fostering Love for Flowers, Foster, Suel, 159 [28
 Fox, B. S., Pear, 177
 Foxgloves, Improved, 357
 Frame Buildings in Cities, 341
 France, Phylloxera in, 25
 " Winter in, 89
 Fremontia, 214
 " Californica, 134
 " and a Howl, 87
 French Capital, Botany in the, 186
 " Fruits in England, 176
 " Weights and Measures, 255
 Frost and Peach Buds, 123
 " or Heat, Hot-house Alarm for, 10
 " White, near Paris, 373
 Fruit & Vegetable Gardening, 14, 48, 76, 110, 142, 173, 205, 238, 266, 300, 332, 364
 " Bees and, 81
 " Crop, Tennessee, 49
 " Crops, Western Pa., 364
 " Culture in England, 146
 " Diseases, Bacteria in, 208
 " Grower's Ass'n Ont. 126
 " " Soc'y, Pa., 94
 " Growing & Gardening, Florida, 364
 " Lechee, 147
 " New Varieties, 17
 " Notes from England, 59
 " of Paper Mulch, 248 [45
 " Ornamental, Roses " or, Trees be Overed, C. n.
 " Lawsuit, 380 [81
 " Pruning, 77
 " " Vital Power, 146
 Fruiting Araucaria imbricat, Lemon, 368 [cata, 354
 " Male Tree, Cephalotaxus Fortunei, 348
 " of Gingko, 218 [58
 " Maiden Hair Tree, Fruits and Trees, Kan., 148
 " " Vegetabl's, Am., 269
 " " in Sac'mento, 147
 " French in England, 176
 " New or Rare, 18
 " Premiums for, 305
 " Seedling, " 224
 " Small Japan, 269
 Fuchsia, The First, 373
 Fuller, A. S., 27
 Full Poddied Peas, 177
 Fumigating, 137
 " Cones, 315
 " Greenhouses, 363
 Fungi, Tree and Lichens, 145
 Furgus, Sulphur for, 211
 Garden, Cambridge, Bot., 22
 " Mr. Hunnewell's, 5, 35
 " Wild, 92, 118 [66
 Gardener, Birds and the, 115
 " Disappearance of, 4, 95
 Gardeners, Improv'm't in, 382
 Gardener's Monthly Index, " Society, A., 160 [379
 Gardening and Fruit Growing, Florida, 364
 " By Monks of Old, 251
 " Experiments, Wise and Other, 194
 " Japan, Decadence, 228
 Gardening, Ornamental, 2
 " Railway, 8
 Gardens, Cats in, 228
 " Kew, 166
 " Small Improv'm't, 231
 " Stealing from, 16
 " St. Louis Public, 35, 227
 General Index, Insects, Mo., 55
 Geographical Range Lily, 121
 Georgia Hort. Society, 27
 Geranium, Fens, Garfield, 74
 " Robertianum, 248 [187
 " White, Scarlet Flowers, Geraniums, Dbl Dwarf, 39
 Germantown, Pa., Hort. Soc., 191
 " Phila., Rare Trees, 70
 Giant Tree, California, 344
 Gingko, Fruiting of, 218
 " Trees, Barren, 217
 Glass, Grape Culture under, Glazing, 166 [235
 " and Pipe Setting, 201
 " Greenhouses, 264
 " without Lapping, 297
 Glendale Strawberry, 297
 Globba coccinea, 283, 284
 Gloxinia Culture, 234, 327
 Glout Moraine Pear, 16
 Glut in Apple Market, 145
 Glutinous Stigmas in Akebia quinata, 248 [ful, 376
 "God's Acre" made, 376
 Golden Arborvitae Grafted on Retinospora, 228
 " Evergreens, 229
 " Plume Arborvitae, 7
 Goldsmith & his Writings, 24
 Government Grounds, Ottawa, 262, 357 [308
 Graduates in Arboriculture, Graft, Influence of Stock, 91
 Grafting Epiphyllum, 300
 " Side Cleft, Universal, 142, 163
 " Strong's Method, 178
 Grape, Best Black, 366
 " Campbell's Triumph, Cochiti China, 177 [271
 " Concord, South, 208
 " Crop in Lake Reg., 304
 " Culture under Glass, 335
 " for California, 304
 " Foreign in Amer., 145
 " Gros Colman, 18, 82, 112
 " Jessica, 329 [366
 " Moore's Early, 338
 " Niagara, 368
 " Pockington, 177
 " Prentiss, 367
 " Rot, 268 [208
 " to Improve, Promising, Triumph, 339
 " Vine, A New, 267
 " Mildew, 145
 " Virginia of the, 60
 " Welcome, 304
 Grapes and Bees, 17
 " Bottling, 146
 " Choice, 115
 " for Cold Grapery, 52
 " Hothouse, 86, 366, 367
 " Hybridizing, 148 [176
 " Imperfect Flowering, in Australia, 210
 " New White, 336
 " Rogers', 210
 " Seedlings, Raising, 208
 " Spanish, Preserv'g, 177
 " Table in South, 208
 " Thrip, To Cure and Prevent, 113
 " Grass, Bermuda, 7, 290, 324
 " and Lawns, 261
 " Flowering, 21
 " Guinea, 122 [89, 122
 " Grasses, Coco and Other, 59
 " Ornamental, 70
 Gray, Dr. Asa, Accident, 380
 Gray's, Asa, Contributions to Amer. Botany, 286
 Great Brit. Tree Plant'g, 370
 Greenhouse & House Gardening, 40, 71, 102, 135, 160, 200, 232, 263, 324, 326, 358
 Greenhouse Correspondence, 205
 " Notes, St. Louis, 169
 " Glazing, 264
 " Heated by Steam, 72
 " Patterson Bros., 170
 " Small, 108
 Greenhouses, Fumigating, 363
 Grouping, 60 [112, 366
 Gros Colman Grape, 18, 82
 Growers and Shippers, 16
 Growing Bulbs, Holland, 249
 " Orchid, 137 [81
 " Potatoes, Flat Culture, Radishes, 147
 " Spighes, 82 [Rapid, 53
 Growth, Ang. Timber Trees, " Forest Trees, 150 [11, 85
 " Plant by Electric Light, " Tree, at Brenham, Tex., " Wood, 187 [244
 Guinea Grass, 122, 161
 Gum, Spruce, 84
 Gynura aurantiaca, 230, 296
 Haddington, Lord & Trees, 125 [204
 Hæmorrhoides, 268
 Hall, Elihu, Death of, 350
 Hallidays, The, of Balt., 221
 Hanging Baskets and Glutinous Stigmas, 329
 Hansell Raspberry, 269, 306
 Hard Botanical Names, 186
 Hardenbergia Comptoniana, 328 [290
 Hardiness of Bermuda Grass " Rose Reine Marie Henriette, 40
 Hardy Apples, Very, 81 [227
 " Coniferæ near Boston, " Cyripediums, 70, 132
 " Herbaceous Plants, Gen'l Cultivation, 200
 Harris' Liliu longiflorum, " L., 139 [118
 Health & Ailments, 154, 232
 " Shade Trees, 165
 " of Pears on Dwarf Stocks, 306
 Heating by Steam and Combined, 166
 " Steam, 42, 72, 73, 74, 103, 169, 194, 137, 139, 141, 169, 173, 200, 232, 263, 264
 Heat in Plants, Evolution, 58
 " or Frost, Hothouse Alarm for, 10
 Hedge Plant, Coming, 297
 Hedgehog, 311
 Hedges, Evergreen under Trees, 291 [299
 Heliconia aureo striata, 298
 Heliotrope Black Flea on, 141
 " White, 74
 Hellanthus, Maximiliani, 218
 Helonias Bulbata, 197
 Helonias & Maples, 231
 Hemlock Spruce in England, 230
 Henderson on Delusions, 17
 Herbarium, Romance of, 341
 Herbarium Acad. Nat. Sci., Phila., 379
 Heredity in White Variegated Fly, 29 [tion, 152
 Hide-bound Beings, 319
 Highland Beauty Apple, 147
 High-toned Papers, 62
 Hints, Chrysanthemum, 38
 " Seasonable, 1, 8, 33, 48, 65, 76, 97, 101, 107, 173, 193, 205, 225, 238, 257, 266, 289, 294, 300, 321, 326, 333, 353, 358
 Hine's Red and White Carnations, 163, 141, 190, 251
 Historical Notes, Arborvitæ, 246
 Historic Elm, End of a, 212
 History, Camellia, 157
 " Dahlia, 252 [241
 " Five ct. Paper of Seed, Manetti Rose, 7
 " Peach in America, 347
 " Some City Peach Trees, 334
 Hollar, Bulb-Growing, 249
 Honey Locust Timber, 84, 181
 Honeyuckle, New Upright, " Ornament, 229 [230
 Hooper, Edw. J., Death of, 350 [Name, 253
 Horse Chestnut, Origin " How to Buy & Sell, 255
 Horticultural Dept. 10th Cin. " Exhibitions, 31, 32
 " Hall, Phila., 61
 " Meetings, Essays at, 32
 " Societies, 31, 191, 224, 256, 351, 384
 " " in Old World, 384
 " State, 32
 " Society, Germ'n, Pa., 191
 " Georgia, 27
 " Lawrence, Mass., 192
 " Maryland, 191, 224
 " Mass., 62, 191, 257
 " Mich., 94, 127
 " Miss., 329, 352
 " Penna., 224, 351
 " " State, 32, 352
 " Premiums, 191
 " Randolph, Ind., 288
 " Royal, Tuscany, 192
 " Russia, 384
 Horticulture, " Boston and Vicinity, 96
 " Mich., Glimpse of, 29
 " Popular, 382
 " Women in, 188
 Hothouse Alarm, 10
 " Grapes, 80, 366
 Hot Water Boilers, 104
 Hough on Forestry, 117, 287
 Houghton Farm Experiments with Corn, 319 [373
 House Fly & Poison Gerns, Hovey's Seedling Strawberry, Howl Grow Celery, 111 [268
 " to Grow Early Cabbage, 304
 Hoyt, Stephen, Sons, 380
 Hunnewell's Gard'n, 5, 35, 66
 Hyacinths, Choosing, 12
 Hyacinth, Superior, 134
 Hybrid Cotton Plant, 247, 343
 " to Grow Early Cabbage, 304
 " Orchids, 184
 Hybridizing Grapes, 148
 Hyde Park St. L. uis, 163
 Hydrangea paniculata, 324
 Hydrangeas, Propagating, 166, 259, 261, 284
 Hygiene, Rules of, 255
 Hygienic Value of Jussiaea grandiflora, 21
 Identities, Floral, 198
 Imitation Flowers, 298
 Imperfect Flowering Grapes, 176 [74
 Improv'm't of C. rimmoses, " Common Garden Marigolds, 371
 " Cranberries, 17 [gold, 40
 " Foxgloves, 357
 " Wall Flowers, 165
 Improvement, Agricultural Grounds, 100
 " Florida, 236
 " in Gardeners, 381
 " Small Gardens, 231
 " White Sulphur Spa., 133
 Independent, The, 383
 Indian Gardener's Monthly, India Cherry, 166 [379
 " Corn, 259, Essay, 27
 " Currant in Decoration, 170 [Plants, 11, 84
 Influence, Electric Light on " Pollen in Cross-fertilizing, 342
 " Stock on Graft, 91
 Insecticide, Yeast as, 147
 Insect Borer, Yel. Locust, 341
 " Laws, 146
 Insects and Diseases, 336
 " Destructive, New Work on, 159
 " Double Broods, 57
 " Injurious, Forest and Shade Trees, 189
 " Farm & Garden, 320

- Painted Labels, 16
 Palm, Date, 217
 Papaw, 64, 120, 153, 188
 Paper by Editor, 190
 " Mulberry, 314
 " " Fruit of, 248
 Papers, High-toned, 62
 Paris, Botany in, 18
 " Cut Flowers in, 73
 " White Frost near, 373
 Parks, Public, St. Louis, 227
 Parry, Dr., 183
 Passiflora princips, 170
 Patents, Plant, Again, 156
 Patterson Bros.' Greenhous, Pawlonia imperialis, 202 [170
 Paw Paw, Mich., 64, 120
 Pea, American Wonder, 116
 " Pres. Garfield, 177
 " Sticks, 177
 Peas, Soil for, 147
 Peach, A. Fox, 83
 " Alexander, 368 [21
 " Almond Growing from, Amstden, 305
 " Blodgett's Cling, 334
 " " Golden Freestone, Blood-leaved, 325 [333
 " Buds and Frost, 123
 " Calloway Cling, 148
 " McFarland's Late, 338
 " Culture, 176, 200, 210
 " " and Yellows, 111, 148
 " " Fulton's, 189
 " Curl in, 270
 " Dyer's June, 18
 " Eureka, 211
 " Flat Chinese, 211, 270
 " Flowers, 177, 241
 " from Chanute, Kan., 338
 " in America, Hist'y, 347
 " Levy's Late, 82
 " Miss Perival, 334
 " New Wanted, 270
 " Oldmixon, 220 [305
 " Planting, Dormant Bud, Trees, Hist. of Some, 334
 " " in Fine Corners, 244
 " Plum Sticks for, 14, 110
 " Willson, 307
 " Yellows, 367
 " " Curing, 17, 144, 147
 Peaches, Chinese Cling, 338
 " New Early, 267
 " Profitable, 116 [177
 Pear & Apple Trees, Disease, B. & Fox, 117
 " Flavor, Esthete in, 46
 " Glout morceau, 16
 " Josephine de Malenes, Kieffer, 17, 349 [368
 " Le Conte, 269, 338
 " Limbs, Disease on, 240
 " Petite Marquette, 126
 " Roots, Sprouting of, 338
 " Seckel, 211
 " " Apple as Stock, 207
 " Seedling, 364
 " Two Sisters, 18 [177
 " Winter Nells, 18, 115, 147
 Pears on Dwarf Stocks, Health
 " Season and, 51 of, 306
 " Seckel, Large, 210
 Peculiar Auriphone, 288
 Penna. Fruit Grow'r's S'y, 94
 " Hort. Society, 224, 351
 " State Hort. S'y, 32, 352
 " " Report, Ag., 134
 Pennsylvanian Budding, 134
 Penn Memorial Trees, 381
 " Monthly, The, 160, 286
 Persimmons, How to Ripen, Japan, 18, 114 [147
 " " as Tub Plants, 113
 Petite Marguerite Pear, 112
 Phila. Acad. Nat. Sciences, 55, 281
 " Florists' Ass'n, 192
 " Hort. Hall, 61
 " Public Squares, 68
 Phloxes, 81
 " in France, 25
 " Laws, 51
 " The Vine Enemy, 24
 Philodendron carderi, 121
 Picea alcockiana, 229
 Pilea repens, 70
 Pine Apples, 210 [100
 " Norfolk Island, Largest, Tree, Arch from, 238
 " White, An Old, 181
 Pinus Arizona, 122
 Pipe Setting & Glazing, 201
 Pittsburg Greenhouses, Patterson Bros., 170
 Plant, Blue Bedding, 39, 67
 " Descriptions, Book of, 190 [Light, 11, 85
 " Growth by Electric Patents Again, 156
 " Stand, Cheap, 107
 Planting, Forestry, 309 [308
 " Seedlings from Forest, Plants, Bedding, 198
 " Grown in Moss, 263
 " Hardy Herbaceous, for Gen'l Cultivation, 260
 " Heat Evolution of, 58
 " Indiana, 28
 " in Fertilized Moss, 264
 " Local Names of, 22
 " New Species, Death & Birth, 343
 " " Shy Flowering, 47
 " Heat, Evolution of, 215
 Ploughing, Ancient, 26
 Plum, Bassett, 81
 " Blackman, 82
 " Kelsey's Japan, 339
 " Miner, 208
 " New, 339 [14, 110
 " Stocks for Peach Trees, Pocklington Grape, 177
 Polioetia pulcherrima, 141
 Poison Absorption by Plant Roots, 123
 " Germ. House Fly & 373
 Poisoning by Kalmia, 120
 Poisonous, Is Kalmia, 154, 313, 342
 " to Sheep, 54, 118, 345
 Pollen in Cross-fertilizing Influence, 342
 Polyantha Rose, 197
 Polygonum amphibium
 " for Tanning, 107
 Pomological S'y, Amer., 190
 Poor Land for Forests, 212
 Popular Horticulture, 382
 Potato Disease, How to Overcome, 286
 Potatoes, Culture, 81
 " from Tomato Plants, 373
 Pots, Strawberries in, Forcing, 50 [279
 Poverty & Productiveness, Practice and Theory, 277
 Prairies, Treeless, Origin, 345
 Premiums, Celery & Onion, 345
 " Hort. Societies, 191
 " New Fruits, 305
 " Seedling Fruits, 224
 Prentiss Grape, 367 [367
 Preserv'g Hothouse Grapes, Spanish Grapes, 177
 Pres. Garfield Greenhous, 238
 " Geranium, 74
 " " Pea, 177
 " " Tomato, 18
 " Thiers Colasia, 362
 Primroses, Imp. Chinese, 74
 Princess Marie de Savoy, Noctules, 134 [206
 Pritchardia grandis, 89, 90
 Proceedings, Convention, Agriculturists, 382
 Produce, French Viney'd, 95
 Productiveness & Poverty, Products, Kansas, 51 [277
 " Profitable, Noctules, 116
 " Tree Planting, 245
 Profits of Forestry, 53 [18
 Progress in Rasp'y Culture, Prolific Raspberries, 271
 Propagating Hydrangea paniculata, 294
 " Hydrangeas, 166, 250, 291
 " Yuccas, 31, 132
 Properties of Cola Nut, 122
 Protection, Forestry, 19
 " Forests a Necessity, 19
 Protection from Drouth, 52
 " Orchards, 268
 Pruning, 336
 " Fruit Trees, 77
 " Ornamental Trees, 164
 Public Gardens, St. Louis, 35
 " Squares, Phila., 98 [227
 Pullers, Stump, 145
 Pulling Flowers, Bad, 24
 Purple Anemone nemorosa, 248 [Leaves, 374
 Purslane, Night-closing in Pyrethrum Powder, 270
 Pyrus salicifolia, 165
 Quality & Seeds, Relation, 144 [141
 Queries, Steam Heating, Questions, Some Rose, 230
 " Steam Managem't, 172
 " Various, 30
 Question, The Muck, 174
 Quince Culture, 52, 211 [24
 Quince, Great Attention to, Substitute for, 247
 Rabbits in Orchards, 302
 Raby Castle Red Currant, Radishes, Growing, 147 [146
 Railroads, & Forest Fires, 273
 " Timber Planting, 117
 Railway Gardening, 8
 Rainfall and Forests, 273
 " in Utah, 246
 Rain Tree, 91
 Raising Seed'g Grapes, 208
 Ramie, 145
 Raphiolepis Indica, 231
 Rarer Ornamental Trees & Gardening, 27
 Rare Trees, Germantown, 70
 Raspberries, Defective, 271
 " Profit, 271
 Raspberry, Best Soil, 208
 " Caroline, 208, 269
 " Churchman's Superb, " Culture, 270 [269, 306
 " " Progress of, 18
 " Hansel, 209, 306
 " in North, 51
 " Reider, 116
 " Souhegan, 205 [Plants, 74
 Red Berries in Winter Pot
 " Bonvardia, Double, 48
 Redwood, 189
 " Timber, 33
 Reder Raspberry, 116
 Refinement, Dress of, 319
 Reine Marie Henriette Rose, 40 [144
 Relation, Seeds & Quality, Remedy, Bark Scale, 51
 " Currant Worm, 116, 148
 " Scale, Linseed Oil, 81
 " Remedy, Large Trees, 133
 Reproducing Varieties, 311
 Residence, Dinsmore, W. B., 280, 285, 314
 Retinospora, Arbovitae, Grafted on, 228
 " Ribes, 69
 Rhododendrons, Early, 229
 Rhubarb, Ornamental, 69
 Rhynchospermum, 160
 " jasminoides, 107, 169
 Richardia Ethiopica, 236
 Riley, Prof., and Yucca [147
 Ripen Persimmons, How to, Roadside Forestry, 308
 Robert, White Herb, 248
 Robin, Summer Migrat'n, 374
 Rochester Nurseries, 251
 Rogers' Grapes, 210
 " Roseraie gradisima, 73
 Romance of Herbaceous, 346
 Roman Floral Luxuries, 252
 Rome Beauty Apple, 81
 Rondoleia speciosa maj., 136
 Roots, Burdock, 116
 " " Mucicament in, 57
 " Plant, Poison, Absorption by, 123
 Rosal Monstrosity, 154
 Rosa minutifolia, 294
 " villosa, 133
 Rose, 25
 " Amer. Banner, 357 [261
 " Baroness Rothschild, Cherokee, Legend, 282
 " Chesnut Hybrid, 132
 " Cornelia Cook, 94
 " Crosses Ellwanger's, 293
 " Duke of Sutherland, 293
 " Ellwanger on, 130, 380
 " Etoile de Lyon, 134
 " Gigantesque, 357
 " Growing Craze, 102
 " Isabella Sprunt, x.d., 134
 " Manetti, History, 7
 " " Origin, 165
 " Marechal Niel, 201, 300
 " " " Origin, 320
 " Polyantha, 197
 " Without Thorns, 313
 Roses, Budded, 131, 293
 " Ellwanger's New Seedling, 230 [145
 " " for Ornamental Fruit, " New of '81, Some, 35
 " " Names, 262
 " Old, 262
 " Synonyms of, 262
 " Wild, 132
 Rot, Grape, 268
 Royal Bouquet, 12
 " Gardens, '80, Rep., 95
 Rubra plena, Violet, 48
 Ruby Currant, 18 [313
 Rudbeckia, Tubular-rayed, Rural Cesterities, 134
 Rushes, 252
 Russian Hort. Society, 384
 Russian Mulberry, &c., 271
 Rust in Blackberries, 176
 Sacramento, Fruit & Vegetables on, 147
 Salishiana, 60
 Sargent, W. L., Death, 380
 Satisfied with the Flowers, Sauer Kraut, 367 [159
 Scabious, Dwf. German, 357
 Scale, Bark, Remedy, 51
 " Linseed Oil for, 82
 Scarlet Flowers from White Geranium, 137 [104, 105
 Schizophragma hydrangeae
 Scholarly Writing, 26
 School of Forestry, 83
 Science and Art, 125
 " Notes, 20
 Scientific Accuracy, 375
 Seaside, Trees & Shrubs, 101
 Season and Pears, 51
 " Past, California, 89
 Seasons, Eng. & Amer., 186
 Seckel Pear, 211 [for, 207
 " " Apple as Stock
 " Pears, Large, 210
 Seed, Banbury from, 58
 " Chinese Esanthium-mums from, 106
 " Distribution, U. S., 124
 " History 5 ct. Paper of, 241 [mums from, 262
 " Japanese, Chrysanthemum Seedling, Azaleas, 265
 " Colenses, 13
 " Forest Trees, 180
 " Fruits, Premiums, 224
 " Grapes, 208
 " Pear, 364 [New, 230
 " Rose s. Ellwanger's
 " Strawberry from W. F. Bassett, 214
 " " Hovey's, 208
 Seedlings from Forest, Planting, 308 [196
 Seeds and Seed Sowing, 80, " Quality, 144
 Selaginella Victoria, 215, 216
 Sensitiveness, Trade, 142
 Sequoia, Section of, 245
 Seventeen Year Locusts, 247
 Sex of Ailanthus, 313
 Sexual Characters, Dicotyledonous Trees, 165
 Shade Trees & Health, 165
 Shedd, Kalmia Poisoning, 54, 118, 345
 " Killer, Another, 373
 Sheldon's Dairy Farming, 63

- Sherfy, Jos., Death, 350
Shingles, Locust, 84
Shippers & Growers, 16 [200
Shrubs, A Few Desirable,
 & Trees for Seaside, 101
 " Old-fashioned, 229 [223
Shy Flowering Plants, 47,
Siberian Arbutus, 292
Sibley, Hiram, 349
Sick Trees and Flowers, 11
Side Cleft Grafting, 142, 143
Silk Culture, 115
 " Nebraska, 339
 " South, 349
 " Osage Orange, 177
 " Worm, 190
 " Ailanthus, 370, 373
 " Mulberry, 208
Single Dahlias, 229, 261, 355
Size of Honey Locust, 181
Sloe, Double, 231
Small Fruits, Japan, 269
 " Greenhouses, 108
 " Yards, Adornment, 130,
 162, 226, 231
Smallest Flower in World, 352
Societies, Transactions of, 384
Soil Best for Raspberry, 208
 " for Peas, 147
 " Wearing Out, 17 [236
Solom'n's Seal for Decorat'g,
Souhegan Raspberry, 305
South Australia, Treatise,
 Tree Culture, 28
 " Carolina, Flowers, 57
 " Wild, " 182
 " Jersey, Ailanthus in, 148
 " Silk Culture in, 349
 " Table Grapes in, 198
Southern Evergreens, 207
 " Nurseries, 20
Sowing seeds, 80, 196
Spades and Forks, 229 [177
Spanish Grapes, Preserving,
Spark Arrestors, 309
Sparrow, English in Can., 270
Sparrows, Australia, 57
Specialists, 124 [163
Species, Nec. Death and
Speech, Col. Wilder's, 220
Spinach, 189
Sponge Growing, 82
Spring, Colors in, 190 [275
 " Tapping Maple Trees,
 Sprouting of Pear Roots, 328
 " Spruce Girdler, 183 [230
 " Henlock in England,
 State Hort. Societies, 32
 Stealing from Gardens, 16
Steam and Water Heating
 Combined, 106
 " Boilers, Attendance, 168
 " Heating, 42, 72, 73, 74,
 103, 109, 134, 137, 139, 141,
 169, 173, 200, 222, 233, 264
 " Management, Ques., 172
Stephanotis floribunda, 73
Stickits, Pea, 177 [169
St. Louis, Greenhouse Notes,
 " Hyde Park, 163
 " Public Gardens, 35, 227
St. Petersburg Bot. Gar., 381
Stock for Seckel Pear, Apple
 as, 207
 " on Graft, Influence, 91
Stocks, Cherry, 210
Somata, 55
Stone, Geo. A., Death, 221
Storing Apples, 146
Storrs, Jesse, Death, 150
Strawberries, 239
 " Albany Seedling De-
 generate, 307
 " Best Flavored, 244
 " Desultory Notes, 303
 " in Michigan, 116
 " Ohio, 304
 " Pots, Forcing, 50
 " Some Large, 269
Strawberry, Burr's Pine, 305
 " Deterioration, 146
 " Glendale, 270
 " Hovey's Seedling, 208
 " James Vick, 305, 339
 " Manchester, 243
 " Plants, Box-grown, 368
Strawberry, Seedling from
 W. F. Bassett, 244
Strelitzia reginae, 140 [ry, 229
Street Tree, Eng. Bird Cher,
Strong's Method Graft'g, 178
Stump Pullers, 145
Subsolling, 116
Substitute for Coffee, 210
 " Quinine, 247
Succession of Forests,
 " 208, 333, 355 [148
Sugar with Dwarf Apples,
Succup Maple Borer, 277 [148
Sulphur for Currant Worm,
 " Fungus, 211
Summer, Migrat' n Robin, 374
 " Tropical Orchids,
 " Open Air, 235
Sunday School Work, 124
Superb Raspberry, Church-
man's, 269, 306 [209
Superior Canadian Apples,
 " Hyacinth, 184
Sweet Chestnut, Dwarf, 39
 " Orchard, 91
 " Potato Culture, 159
Sweets, Catch' g Codling
 " Moth with, 115
Sycamore, Wright's, 122
Synonyms of Roses, 262
System, Decimal, 316
Talk about Lilies, 134
Tallow Tree, 218
Tanning, Polygonum am-
 phibium for, 181
Tapping Maple Trees in
Tar, Coal, 80 [Spring, 275
 " Water for Insects, 10
Teasel Culture, 79
Temperature, 103
Tennessee Fruit Crop, 29
Territory, Unexplored, 53
Testimonial to Keiffer Pear,
 349
Texas, Cypress Family, 292
Theory and Practice, 277
Thinning, 339
Thorn, Ohio, A Fine, 70
Thorns, Rose without, 313
Thrip on Grapes, Cure and
 Prevent, 113
Timber, Ailanthus, 84, 181
 " Culture, Australian, 118
 " Durability, 245
 " Duration, Iowa, 118
 " Honey Locust, 84, 181
 " in Michigan, 217
 " Virginia, 117, 245
 " is King, 19
 " Laws, U. S., 118, 149
 " on Pacific Coast, 84
 " of British Columbia, 53
 " Planting along R.R., 117
 " Redwood, 53
 " Tree, Ailanthus as, 117
 " Trees, American, Rapid
 " Growth, 53
 " " Insect on, 370
Tobacco Crop, 210
 " Raisers, Bad News for,
Tomato Cat-snip, 337 [16
 " Disease, 307, 313
 " Plants, Potatoes on, 373
 " Pres. Garfield, 18
Tomatoes to the Acie, 209
Tonbs, Egyptian Flow'rs in,
Torch Lilies, 21 [124
Trade Sensitiveness, 124
Transactions, Societies, 381
Transpiration of Plants, 215
Tree Agents, Truth as ap-
 plied to, 15 [184
 " Annual Circles Wood
 " California Mammoth
 " Candle 57, [Section, 89
 " Wax, 277
 " Chinese Varnish, 91
 " Giant, California, 344
 " Growth Brenham, Tex.,
 " Label, New, 51 [244
 " Malefactor's, 128
 " Mammoth California
 " in Europe, 133
 " Nandine, 325 [bers, 128
 " Peddl'rs & New Subscri-
- Tree Planting Arguments, 340
 " Australia, 180
 " Canada, 370
 " China, 370
 " Great Britain, 370
 " Kansas, 370
 " Nebraska, 370
 " Profitable, 245
 " Rain, 91
 " Tallow, 218 [345
Treeless Prairies, Origin,
Trees, Aged, 212
 " and Flowers, Sick, 11
 " Fruits, Kan., 148
 " Ornamental Gard-
 ening, Rarer, 2 [101
 " Shrubs for Seaside,
 " Blood-leaved, 100
 " Close Trimm'd, 332
 " Evergreen Hedges under,
 291
 " Gingko, Barren, 217
 " How Spread over
 " Cleared Land, 55
 " in Germantown, Phila.,
 " Rare, 70
 " Large, Removing, 133
 " Lemon, 116
 " Lover of, 125 [164
 " Old, 123
 " Ornamental, Pruning,
 " Penn Memorial, 381
Tresses, Ladies, 375
Tricopilia suave, 42, 104
 " tortilis, 42
Trimmed Trees, Close, 322
Triumph Grape, 339 [Air, 135
Tropical Orchids in Open
 Trails, 343
Trumpey, T. R., 26 [Agts, 15
Truth as Applied to Tree
Tuberoses, Diamond, 25, 30
 " Dwarf, 357
Tuberoses, 325 [11
Tuberos-rooted Begonias,
Tub Plants, Japan Persim-
 mons as, 113 [313
Tubular-rayed Rudbeckia,
Tuscany, Roy. Hort. Soc., 192
Twin Apple, 22
Two Sisters Pear, 18
Tying, Yucca Fibre for, 308
Typographical Errors, 255
Uncertainties of Exposi-
 tions, 62 [field, 60
Under the Willows at Lich-
Unexplored Territory, 53
Universal Int. Tables, 160
 " Side Cleft Graft'g, 142-3
University of Missouri, 55
U. S. Ballistic and Geog.
 Survey Territories, 96
 " Lumber Resources of, 272
 " Seed Distribution, 124
 " Timber Laws, 118, 149
Use for Yucca Leaves, 345
Using Pyrethrum Powder,
Utah, Rainfall in, 247 [270
Value of Ailanthus Timber,
 " Worms, 116 [181
Variegated Arbutus, 168
Variation, White, Heredi-
 tary in, 152
Varieties of Fruit, New, 17
 " Reproducing, 351
 " to Plant, 336
Variety of Wistaria, Enor-
 mous, 228
Varnish Tree, Chinese, 91
Vegetable Gardening, Louis-
 ville, 305 [209
Vegetables & Fruit, Ameri-
 can, " on Sacra-
 mento, 17
Vegetation, Arizona, 153
Ventilation, 335
Vick, James, Business, 254
 " Death, 188
 " Portrait, 221, 381
 " Strawberry, 305, 339
Victoria Regia, 283
 " Open Air, 293, 354
Vilmorin, Maurice, 317 [95
Vineyards, French, Produce,
Violet, Large, 165 [Toy, 134
 " Princess Marie de Sav-
- Violet, Rubra plena, 48
Virginia and Grape, 60
 " Lumber in, 30
 " Thuber in, 117, 245
Vital Power, Fruit Trees, 146
Wabash Valley Forests, 341
Wall Flowers, Imp'd, 161
Walnut, Early Fruiting, 367
 " Grove in Ark., 212
Walnuts, European in Ark., 244
Wash. Terr., Winter in, 151
Water Changing Character
 of Forests, 183
 " Lilies, Chapter on, 325
 " Lily, Florida Yellow, 325
Watering and Syringing, 336
Watermelon, Boss, 307
Waters of Lake Ontario, 20
Watson's Nurseries, Bren-
 ham, Texas, 189
Waukegan, Ills., Notes, 181
Wearing Out of Soil, 17
Weather, Laws of, 214
 " Mill, 51
Webster and Papaw, 188
Weeds, Laws against, 25
Weeping Willows, Early
 " American, 22
Weight of Apples, 367 [235
Weights & Measures, French,
Wells, Greenhouse, 108
Wellesley, Mr. Hunnewell's
 Garden, 5, 35, 66
Western Art, 189
 " Penna. Fruit Crops, 364
West, Manuring in the 211
 " Notes from the, 37, 311
White Blackberries, 307
 " Cedar, 22 [247
 " Flowering Mignonette,
 " Geranium, Scarlet
 " Flowers from, 187
 " Grapes, New, 336
 " Heliotrope, 74
 " Helen's Bouquet, 248
 " Oak, Large, 20
 " Pine, Old, 181
 " Sulphur Springs, Im-
 provement, 133 [in, 152
 " Variegation, Heredit.,
 " Winter Flower, 141
Wigella candida, 290
Wilder's Speech, 220
Wild Flowers of S. C., 181
 " Garden, 29, 92, 118
 " Roses, 133
Willows, Early Amer., 22
Willson Peach, 307
Winch Paper, 174
Windsor Cherry, 208
Wines, Manipulated, 91
Winter Blooming White
 " Flower, 141
 " Flower' g Carnations, 12
 " in France, 89
 " Wash. Terr., 151
 " Nells Pear, 18, 115, 147,
 177
 " Peach, Levy's Late, 82
 " Pot Plants, Red Ber-
 ries in, 74
Wood Cuttings, Old, 258
 " Growth, 15
Women in Horticulture, 188
Worm, Drop, 40 [find, 183
 " Early Birds did not
Worms, Value of, 116
Wright's Sycamore, 122
Writing, Scholarly, 22
Yards, Soil Adornment,
 " 130, 162, 226, 231
Yeast as an Insecticide, 147
Yellow Calla Lily, 288
 " Choke Cherry, 154, 187
 " Locust Insect Borers, 341
 " Water Lily, Florida, 325
Yellows & Peach Culture,
 " 111, 148, 367
 " Peach, Curing, 17, 144, 147
Yucca Fibre for Tying, 308
 " Leaves, Use for, 345
 " Moth, Prof. Riley, 92
Yuccas, 239
 " Propagating, 34, 132
Zonal Geranium, Presi-
 dent Garfield, 74



